TREND ANALYSIS

FOR STRATEGIC PLANNING 2021

LAKE LAND COLLEGE

Author

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Part I.

INTRODUCTION

In 2021, Lake Land College began the process of planning for a new strategic plan for the College. The College's goal is to develop an innovative and adaptive strategic plan that addresses local, state, and national trends in higher education as well as position Lake Land to meet the student and workforce needs in a post-pandemic environment. To accomplish this, Lake Land is implementing a process that is deliberately inclusive of its potential community stakeholders as well as internal College personnel and students. This Trend Analysis Report is the first of three steps involved with developing an Environmental Scan that will include the Trend Analysis Report, feedback from community surveys of external and internal stakeholders, and feedback from in-depth focus groups. Information from all three sources will be integrated into a comprehensive Environmental Scan that will be used to identify the priorities, goals, and objectives of the College's next strategic plan to begin in FY 2023.

The Trend Analysis Report provides an overview of the demographics related to the district which Lake Land College serves. In addition, it provides a summary of key research on a number of topics impacting higher education at the state, national, and global levels categorized by financial/economic, social, academics & technology, workforce, and collaboration factors.

Note:

Throughout the document you will see red underlined text. These are hyperlinks that will either take you to another location in the document or out to the reference used for the information.

PART II.
EXECUTIVE SUMMARY

The following key takeaways highlight the prominent ideas and issues identified through the research detailed in the body of the report. Each of the key takeaways is linked to the full section where the research is presented.

DEMOGRAPHICS

Population

- Illinois experienced the nation's worst raw population decline from 2010-2019. The consistent decrease in the Illinois population over the last few years as well as the decrease in high school enrollment significantly impacts enrollment at community colleges. These declining enrollments also create budgetary constraints for the college as well as workforce challenges for community businesses and industry.

Poverty & Diversity

- While the percentage of minorities in Lake Land's district is very low (3.7%) compared to Illinois (23.2%) and the United States (23.7%), the percent of low-income residents is higher. Around 11.8% of Lake Land's in-district residents live in poverty compared to the rest of Illinois at 11.5% and the United States at 10.5%. The average household income is $53,444 compared to $65,886 in Illinois and $62,843 in the United States. Our district has decreased the poverty rate by 2.9% since 2015.

Educational Attainment

- Lake Land's district shows a lower rate of residents with a Bachelor's degree or higher with an average of 17.7% compared to the 34.7% in Illinois and 32.1% in the United States. However, Lake Land's district has a higher percentage of persons with associate degrees (8.5%) compared to Illinois (5.5%) and the Nation (5.7%).

ECONOMICS/FUNDING

Decrease in Government Support for Higher Education

- Illinois has consistently decreased its support of higher education for the past two decades, resulting in shifting more of the financial burden to students and families.
- Community colleges receive approximately $8,800 less funding per student enrolled than four-year institutions.
- In the 2017-2018 academic year, community colleges enrolled nearly 41% of all undergraduates but only received 33% of Pell Grant funds distributed.
- Illinois has cut higher education funding by half since fiscal year 2002. The original funding formula for Illinois community colleges is one-third each from state, property taxes and tuition. The state is currently contributing only 16% of community college funding.
- In 2020, Illinois' community colleges served more Monetary Award Program (MAP) eligible students than all other higher education institutions combined, but only 11% of community college students received a MAP grant. MAP is awarded on a first-come, first serve basis and is exhausted before many community college students enroll in college. More than 40% of MAP-eligible community college students are placed in suspended status each year, meaning they are qualified to receive MAP, but the funds have run out.

Individual Economic Uncertainty

- Financial insecurity is a major concern for many community college students and can play a major role in students' inability to complete their higher education goals. Many students live at or below the poverty level.

Changing Attitudes about the Value of Higher Education

- Many Americans have significant concerns about the cost of higher education and there is increasing public skepticism for the value of higher education. This is despite the fact that median earnings for full-time employees are significantly higher for people attaining an associate's degree or higher in comparison to those with a high school diploma or less.
- Student loan debt is now the second highest consumer debt category in the U.S., with about 54% of college students needing to borrow money to attend college.

Declining Enrollment at Community Colleges

- Nationally, community college enrollment has experienced a steady decline since 2016. Lake Land College has had a 27% decrease in annual student enrollment between 2009 and 2020.

SOCIAL FACTORS

Mental Health & Social Isolation

- The American College Health Association reports that 60% of college students suffer with anxiety and 40% have depression. It is likely the social isolation required during the COVID-19 pandemic may have intensified these issues. Traditional aged college students, who range in age between 17 and 24, fit into the vulnerable category in that half of mental health issues begin by age 14 and 75% begin by age 24 with higher rates of disorders in college-aged students, according to Active Minds.

Diversity, Equity & Inclusion

- Illinois has established state-wide efforts to close the equity gaps for higher education attainment among low-income, minority, first generation, working adults and rural students. More than 40% of the Lake Land's students are classified as low-income, 35% are first generation and 36.8% are non-traditional.
- When compared to their four-year university peers, community college students are more likely to work full-time, to enroll part-time, to be older, to live in low-income households, and fail to pay on their student loans. In addition, community college students are less likely to borrow money for college and apply for financial aid than their four-year peers.
- From a national perspective on adult education, GED students are less likely to attend postsecondary education compared to students who receive a high school diploma, with 43% of students who complete a GED attending postsecondary education compared to 73% of students who receive a high school diploma attending postsecondary education. Only 5% with a GED will earn a bachelor's degree compared to 33% with a high school diploma.

Remedial Education

- In Illinois, nearly one-half of new high school graduates assess into developmental education courses. At Lake Land 73.2% of incoming students assess into developmental math education and 44% assess into developmental reading and/or English.

ACADEMICS & TECHNOLOGY

Students and Technology

- Technology (i.e., devices, Internet, etc.) has become an essential element in higher education, yet many students have problems accessing reliable and updated technology and devices, which is a bigger issue for low-income and minority students. Students with technology issues are more likely to have poorer outcomes than students with steady access to technology and devices.

Teaching with Multiple Methods and Blended Learning

- A 2019 national survey found 38% of college students prefer completely face-to-face courses and only 7% prefer completely online courses. The remaining 55% prefer classes that blend face-to-face with online elements. This blended approach can provide learning advantages over fully online or fully traditional courses.
- Technology integrated effectively into a course can increase student satisfaction, grades, retention and completion as well as provide more flexibility for students.
- Hyflex courses offer students the flexibility to participate in class virtually, face-to-face, or in a combination of their choosing. This method can decrease barriers to enrollment and allow students with health issues and/or family and work obligations to make progress on their educational goals.

Online Education

- Since 2000, the online/virtual/remote/distance learning industry has exploded for academia, business and industry.
- Undergraduate enrollment in online courses increased from 15.6% in 2004 to 43.1% in 2016.
- Since 2000, eLearning in business and industry has increased 900% and 41.7% of Fortune 500 companies are using technology for training employees.
- Faculty perceptions of online learning are shifting. Around 57% of faculty are more receptive to digital learning materials, and 51% are more receptive to online learning than they were before the COVID-19 pandemic.
- During the pandemic, 71% of faculty reported changing their teaching techniques significantly, and all but 8% will likely keep these changes.
- Even with the demand for more online education, a Pew Research Center 2020 student survey conducted during the pandemic revealed a majority of students continue to prefer face-to-face classes over other learning environments.
- Institutions must promote academic integrity through policies and practices when transitioning to an online environment. Best practices, strategies and software programs can be utilized to minimize academic misconduct.

Open Educational Resources (OERs)

- Open educational resources (OERs) are cost effective options for students that allow access to the content anywhere with Internet availability, and have been shown to increase credit hour accumulation and retention of students. OERs must be checked for validity and language.

Artificial Intelligence & Data Analytics

- Artificial intelligence and data analytics can be used in multiple ways to benefit both students and institutions. Instructors can use AI to personalize learning experiences. Institutions can use AI and data analytics to improve communication with students as well as student success measures.

Alternative Credential Offerings

- The interest and need from employers and students for additional skills have opened the door to expanding alternative and stackable credentials offerings. These credentials have the benefit of being cost-effective, short-term, flexible, and promote lifelong learning. They also provide opportunities to gain new skills and/or a full degree.

WORKFORCE

Automation and the Workforce

- As automation and technology develop in business and industry, workers with little or no advanced education beyond high school diplomas may find themselves in need of additional education, training, or skills to keep their jobs, to complete non-automated tasks or to move into new positions. Alternative credentials can help fill the skills gaps for business and industry.

Decreasing Workforce

- In spring 2020, almost 70% of US employers reported difficulties in hiring qualified employees, a 17% increase from 2018. January and February of 2021 both saw increases in job openings of 5.1% and 3.8%, respectively, yet there are still more job openings than unemployed workers.
- The US labor force participation rate (LFPR) measures the number of people employed or actively seeking work. According to Hetrick et al. (2021), this rate has decreased to a low not seen since the mid-1970s.

Science Technology Engineering and Math and Healthcare Jobs

- Increasing automation in occupations leads to higher salaries; however, these higher salaries can only be acquired with essential education and skills. Short-term training and in-plant training can provide employees with these skills. It has been estimated that 65% of jobs in 2020 required education beyond high school and only 41.7% of Americans have an associate degree or higher.

COLLABORATION

Business & Industry

- Workers in industries across the board require technical savvy to be successful. While community colleges can meet students in their communities and provide them with career and technical education opportunities, providing students with the education that aligns directly with work based learning opportunities continues to be a struggle. It is essential to develop, maintain, and expand collaboration among K-12, community colleges, and business and industry in order to provide students with opportunities for apprenticeships and work based learning.
- Apprenticeships or earn and learn programs benefit both employers and students or workers. These programs allow students/workers to train on the job, be paid, and learn the skills that employers need. They provide a hiring pipeline for business and industry.
- Students participating in paid work based learning opportunities are more likely than students with unpaid work based learning experiences to receive job offers across employer types. In addition, they are more likely to receive higher starting salaries than those that participated in unpaid opportunities.

Dual Credit

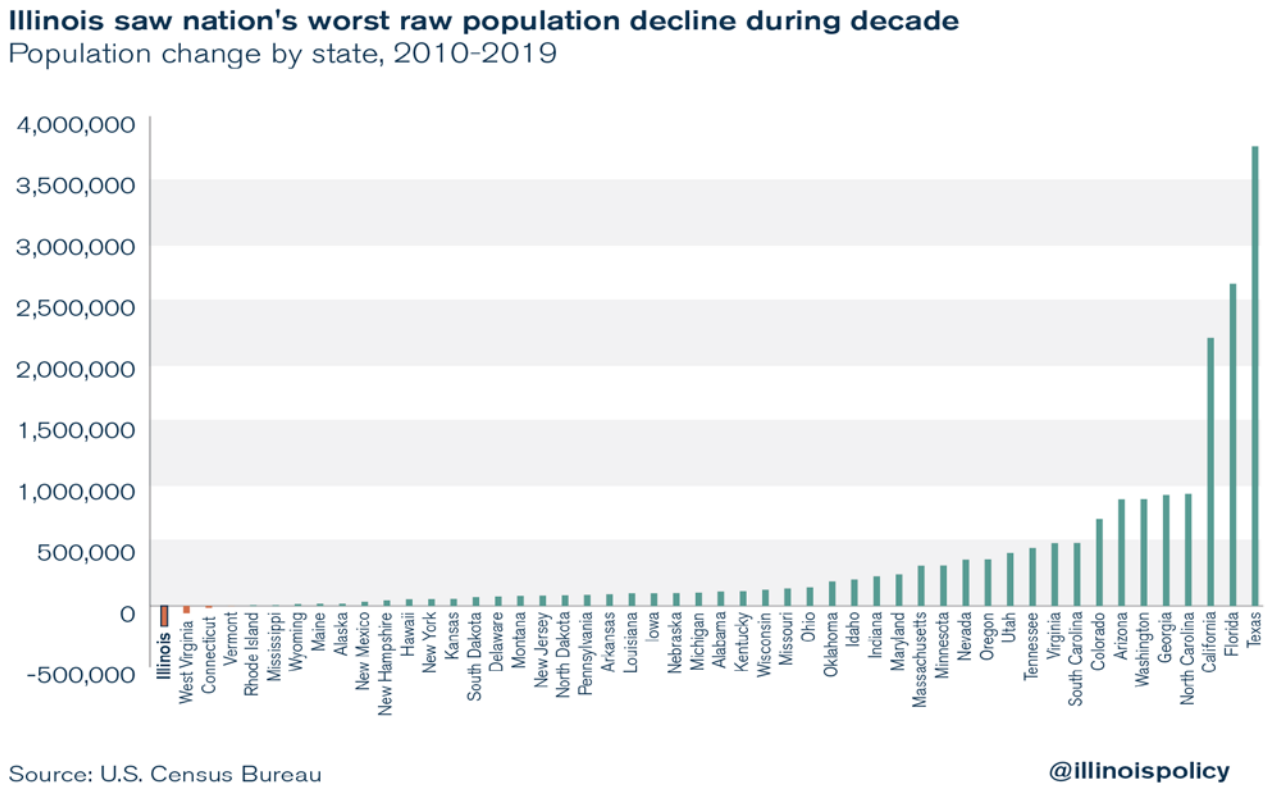
- According to the US Department of Education, between the academic years of 2002-03 and 2010-11, the number of high school students taking dual credit courses increased by 68% for a total of nearly 1.4 million students. Almost 70% of high schools provided dual credit opportunities to their students by 2015.
- Dual credit students are more likely than non-dual credit students to enroll in college, complete a college credential/degree and finish a degree in less time.
- Dual credit enrollees were more likely than their non-dual credit peers to graduate from high school, enroll in a four-year college, persist in college, accumulate more college credit and were less likely to take remedial courses.
- Dual credit programs can differ widely in eligibility requirements, affordability, and student support, which can create barriers for minority and low-income students.

Part III. DISTRICT DEMOGRAPHICS

Lake Land College serves a 4,000 square mile district encompassing two complete counties (Effingham and Cumberland), the vast majority of Moultrie, Coles, Clark, and Shelby Counties, at least half of Edgar and Fayette Counties, and small sections of Christian, Montgomery, Clay, Jasper, Crawford and Douglas counties. Since an extremely small section of Macon County is included in Lake Land's district, Macon County information is excluded from the report.

Population

Between 2010 and 2019, Illinois experienced the largest raw population decline in the nation, and Illinois experienced a seventh straight year of population decline in 2020—the most in state history since World War II. In fact, Illinois has lost over 253,000 residents in the last decade. The largest group of movers are prime working age individuals seeking better jobs and housing opportunities in other states, which impacts the economy in Illinois.

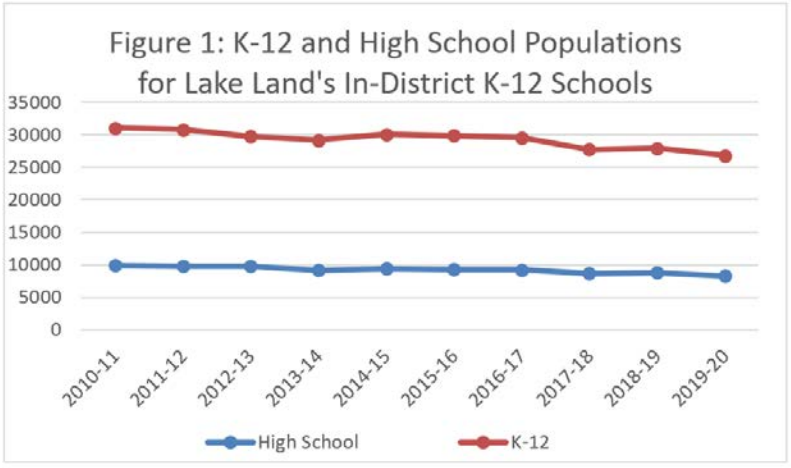


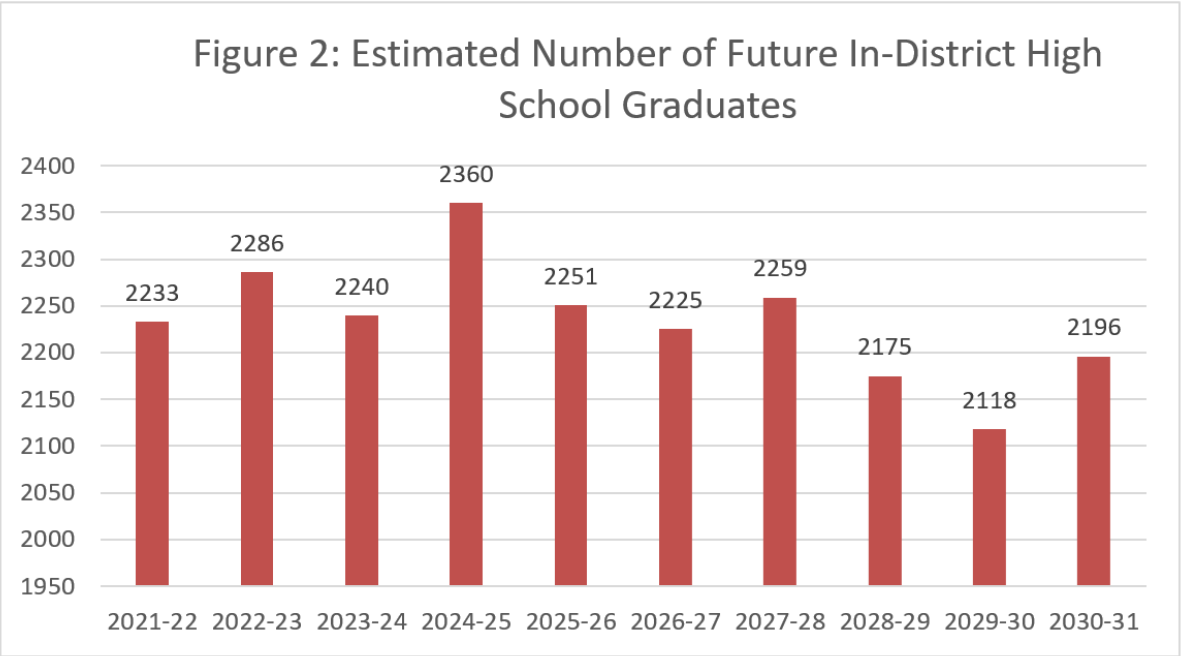
Between 1950 and 2020 the total population for the counties within Lake Land's district has decreased by around 4,300 people. Since the district's high point in population in 1980, the district's county population has decreased by 18,944 people. Almost two-thirds of this exodus (11,716) have left the district over the past 10 years. Table 1 provides a summary of the Census population by county in Lake Land College's district between 1950 and 2020.

Table 1: Lake Land College District County Populations Based on Census Data 1950 to 2020 Based on Census Quick Facts								
County	Census Year							
	1950	1960	1970	1980	1990	2000	2010	2020
Christian	38,816	37,207	35,948	36,446	34,418	35,372	34,800	34,032
Clark	17,362	16,546	16,216	16,913	15,921	17,008	16,335	15,455
Clay	17,445	15,815	14,735	15,283	14,460	14,560	13,815	13,288
Coles	40,328	42,860	47,815	52,260	51,644	53,196	53,873	46,863
Crawford	21,137	20,751	19,824	20,818	19,464	20,452	19,817	18,679
Cumberland	10,496	9,936	9,772	11,062	10,670	11,253	11,048	10,450
Douglas	16,706	19,243	18,997	19,774	19,464	19,922	19,980	19,740
Edgar	23,407	22,550	21,591	21,725	19,595	19,704	18,576	16,866
Effingham	21,675	23,107	24,608	30,944	31,704	34,264	34,242	34,668
Fayette	24,582	21,946	20,752	22,167	20,893	21,802	22,140	21,488
Jasper	12,266	11,346	10,741	11,318	10,609	10,117	9,698	14,588
Montgomery	32,460	31,244	30,260	31,686	30,728	30,652	30,104	28,288
Moultrie	13,171	13,635	13,263	14,546	13,930	14,287	14,846	14,526
Shelby	24,434	23,404	22,589	23,923	22,261	22,893	22,363	20,990
Total	314,285	309,590	307,111	328,865	315,761	325,482	321,637	309,921
https://www.dph.illinois.gov/data-statistics/vital-statistics/illinois-population-data *https://www.census.gov/quickfacts/fact/table/US/PST045216								

In-District School Population

Lake Land College's district encompasses all or parts of 31 public school districts. Over the years, the district has seen a gradual decline in the population of school age children. During the 2019-2020 school year, these school districts had a total of 26,816 students enrolled in their K-12 classes compared to 31,068 students enrolled in K-12 during the 2010-2011 school year. This is an overall decrease of 4,252 students in the K-12 system over the past 10 years. Furthermore, the high school population (i.e., grades 9 to 12) during this same time frame has also decreased from 9,901 in 2010-2011 to 8,298 in 2019-2020, a decrease of 1,600 students. Figure 1 provides a graphic depiction of the slow and steady decline of the College district's K-12 population over the years. Figure 2 provides a forward look at the number of potential annual high school graduates from 2022 to 2031. This number is based on current enrollment numbers of in-district K-12 schools.





Percent of Population in Poverty

The percent of the population in poverty for Illinois ranged between a low of 11.5% and a high of 14.4% between 2011 and 2019, with an average of 13.3% living in poverty during this time frame. Since 2011 seven of the counties within Lake Land's district had consistently lower poverty levels than the state. The remaining seven counties had higher percentages of their population in poverty than the state. These seven counties had an average of 14.3% of their population living in poverty in 2019.

Percent of Population in Poverty over Time for Lake Land's In-District Counties							
	2019	2018	2016	2015	2013	2012	2011
Illinois	11.5	12.6	13.6	14.4	14.1	13.7	13.1
Christian	12.3	13.6	12.7	14.4	14.9	15.9	15.8
Clark	10.8	11	13.8	13.9	12.3	11.5	10.2
Clay	13.8	13.2	14.5	13.6	15.6	14.9	16.9
Coles	16.8	19.5	21.8	22.9	22	22	22.1
Crawford	12.6	13.8	13.4	15.2	14.4	15	16.4
Cumberland	10.1	10.3	12	12.2	13.9	13.4	13.1
Douglas	8.0	9.8	10.2	10	10.3	10.1	10.2
Edgar	13.2	13.8	13.9	15.1	18.4	15.7	14.9
Effingham	9.2	9.7	9.8	11.8	9.1	9.7	10.7
Fayette	15.1	18.2	18.5	17.5	17	18.3	16.8
Jasper	9.9	11.9	12	11	6.6	7.5	7.6
Montgomery	16.0	15.5	16.6	17	14.1	14.2	14.6
Moultrie	8.6	9	8.6	11.8	12.8	10.7	10.5
Shelby	9.4	10.3	11.6	11.7	11.8	10.1	10.5
Average	**11.8**	**12.8**	**13.5**	**14.2**	**13.8**	**13.5**	**13.6**
https://www.census.gov/quickfacts/fact/table/US/PST045219?							

Income

The median household income for Illinois ranged from $56,576 to $65,886 between 2011 and 2019. During this same time period, the average median household income for the counties within Lake Land's district ranged between $44,698 in 2011 to $53,043 in 2019. These data indicate that in general, households within Lake Land's district earn significantly less than households across Illinois. In fact, households within Lake Land's district earned an average of $12,843 less than households in Illinois for this time span. This trend shows no indication of reversing, and in fact, the gap between median salary in Illinois and median salary in Lake Land's district is getting wider. In 2011, this gap was $11,878 and it increased to $12,843 by 2019.

Educational Attainment

Based on data between 2015-2019 collected by the U.S. Census, Illinois has a higher percentage of individuals 25 and older who have at least a bachelor's degree than the nation (34.7% IL compared to 32.1% US in 2019). Even though the percent of Illinois residents (34.7%) with at least a bachelor's degree is higher than the nation, the educational attainment of Lake Land College district residents is much lower than the nation and Illinois. Of the fourteen counties in Lake Land's district only two counties within Lake Land's district exceed 22% of their population attaining a bachelor's degree or higher. In 2019, 26.0% of Coles County and 22.7% of Effingham County residents had a bachelor's degree or higher. Even though one of these counties has a four-year university within its boundaries, it still has a much lower percent of residents with four-year degrees than the nation and Illinois overall. The remaining counties have even lower percentages of residents with a bachelor's degree or higher education attainment. Their percentages range from 11.3% to 19.9% for 2019. On average, the 14 counties within Lake Land's district only have about 17.8% of their residents with at least a four-year degree, which is almost half of the statistic for Illinois residents (34.7%). However, the percent of persons with an associate degree in Lake Land's district are at the same level or higher than Illinois or the nation in 2010, 2015, and 2019. In 2019, an average of 8.5% of the population across Lake Land's district had an associate degree.

Education Attainment by Percent of County Population in LLC District for Population 25 Years and Over									
	2019			2015			2010		
	High School or More	Associate Degree	Bachelors or Higher	High School or More	Associate Degree	Bachelors or Higher	High School or More	Associate Degree	Bachelors or Higher
United States	88.0%	5.7%	32.1%	86.3%	5.3%	29.3%	85.0%	4.9%	27.9%
Illinois	89.2%	5.5%	34.7%	87.6%	5.1%	31.9%	86.2%	4.7%	30.3%
Christian	89.7%	6.9%	17.1%	88.2%	5.9%	13.9%	85.8%	4.9%	12.1%
Clark	92.8%	10.0%	19.9%	89.7%	7.9%	18.4%	88.0%	7.7%	16.4%
Clay	88.0%	8.3%	15.0%	87.3%	8.2%	13.5%	86.2%	7.3%	13.8%
Coles	91.4%	7.0%	26.0%	89.5%	6.5%	24.0%	89.3%	4.7%	23.3%
Crawford	85.0%	12.5%	17.1%	89.0%	10.5%	17.7%	86.5%	9.0%	13.5%
Cumberland	90.6%	10.3%	15.4%	87.7%	9.2%	13.9%	88.1%	7.4%	13.0%
Douglas	83.2%	6.0%	18.9%	83.7%	5.4%	17.1%	81.7%	4.2%	14.9%
Edgar	90.1%	9.1%	17.2%	86.9%	7.0%	16.9%	88.4%	5.9%	16.8%
Effingham	93.1%	9.6%	22.7%	91.3%	8.9%	20.2%	89.4%	8.2%	20.0%
Fayette	83.8%	7.1%	11.3%	84.0%	6.1%	13.4%	82.9%	5.4%	14.3%
Jasper	89.8%	10.5%	16.6%	90.8%	9.9%	18.4%	88.2%	9.4%	13.0%
Montgomery	87.7%	7.0%	16.7%	85.3%	6.3%	12.7%	83.5%	5.1%	13.3%
Moultrie	84.7%	7.0%	18.6%	84.6%	6.5%	15.5%	83.8%	6.5%	13.8%
Shelby	92.3%	7.5%	16.8%	90.3%	7.5%	14.3%	87.7%	7.1%	14.7%
https://www.census.gov/quickfacts/fact/table/US/PST045219 https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/									

Age and Diversity

According to the U.S. Census, currently 5.9% of Illinoisans are five years and younger, 16.3% are between 6 and 17, 16.1% are 65 years of age and older. This means around 61.7% of the residents of Illinois are of working age (fall between the ages of 18 and 64). The age breakdowns of Illinoisans closely resembles the age breakdown of Lake Land's district with a slight change. On average, the age of Lake Land district's residents are as follows: 5.8% are children five years and under, 16% are between 6 and 17, and 20.0% are 65 and older, which means around 58.3% fall between 18 and 64.

Number and Percent of County Population by Age Group 2019									
	2019 Population Breakdown by Age Group								
	Pop	0-5		6 to 17		18 to 64		65 and up	
		n	%	n	%	n	%	n	%
Christian	32,304	1,648	5.1%	4,845	15.0%	19,286	59.7%	6,525	20.2%
Clark	15,441	880	5.7%	2,563	16.6%	8,879	57.5%	3,119	20.2%
Clay	13,184	791	6.0%	2,189	16.6%	7,462	56.6%	2,742	20.8%
Coles	50,621	2,430	4.8%	6,631	13.1%	32,701	64.6%	8,859	17.5%
Crawford	18,667	1,008	5.4%	2,688	14.4%	11,350	60.8%	3,621	19.4%
Cumberland	10,766	624	5.8%	1,766	16.4%	6,180	57.4%	2,196	20.4%
Douglas	19,465	1,285	6.6%	3,523	18.1%	11,095	57.0%	3,562	18.3%
Edgar	17,161	892	5.2%	2,574	15.0%	9,833	57.3%	3,861	22.5%
Effingham	34,008	2,313	6.8%	5,815	17.1%	19,793	58.2%	6,087	17.9%
Fayette	21,336	1,237	5.8%	3,200	15.0%	12,759	59.8%	4,139	19.4%
Jasper	9,610	605	6.3%	1,624	16.9%	5,478	57.0%	1,903	19.8%
Montgomery	28,414	1,478	5.2%	4,234	14.9%	16,850	59.3%	5,853	20.6%
Moultrie	14,501	928	6.4%	2,741	18.9%	8,019	55.3%	2,813	19.4%
Shelby	21,634	1,190	5.5%	3,375	15.6%	12,050	55.7%	5,019	23.2%
Averaged %			5.8%		16.0%		58.3%		20.0%
https://www.census.gov/quickfacts/fact/table/US/PST045219?									

Lake Land's district has very little diversity when it comes to race. On average, about 96% of its population is white alone. This is very different from the state of Illinois, which is 60.8% white alone not Hispanic, 14.6% black or African American alone, and 17.5% Hispanic/Latino, 5.9% Asian, and 2.1% two or more races.

Unemployment

Between 2015 and 2020, the unemployment rates by Lake Land's in-district counties ranged between a low of 3.3% to a high of 7.7%. Even with the impact of the COVID-19 pandemic in 2020, the average unemployment rate for Lake Land's district was 5.4%, which is still lower than the largest average rate (6.6%) in 2015. The national unemployment rate for January of 2021 was 6.3%, which was almost 3% higher than the pre-pandemic unemployment rate of February 2020 (3.5%). The counties with the highest unemployment rate for 2020 within Lake Land's district included Montgomery (5.9%), Clay (5.8%), and Coles (5.4%).

Mass Layoffs

According to Illinois Work Net Center, there were several permanent mass layoff events from businesses and industry within Lake Land College's district since 2015. In 2020 alone, Lake Land College's district lost 1,501 jobs due to two manufacturing plant closures and one layoff event. In 2019, 50 jobs were permanently eliminated due to a business closure, and in 2018, another 413 jobs were lost within the district. In 2017 an additional 51 jobs were eliminated, and another 121 jobs were eradicated in 2015. There were no reported mass layoff events resulting in permanent job losses in 2016. Between 2015 and 2020, Lake Land's District lost a total of 2,136 jobs due to mass layoff events.

Jobs and Industries

According to the Illinois Department of Commerce and Economic Opportunity, in 2020, Local Workforce Innovation Area 23 (LWIA[1]) had a total estimated number of 10,373 businesses in 11 of the counties that fall within the College's district. The most common industry groups in this area included other services (4,102), retail trade (1,601), agriculture/forestry/fishing (1,270), construction (799), finance/insurance/real estate (775), transportation/communications and utilities (576), and manufacturing (411). According to the Illinois WorkNet Center, in 2016, the total estimated number of employees across all occupation groups for LWIA 23 was 123,902 and the projected number for 2026 is 130,008, which is a projected increase of 6,186 (5% increase) workers over ten years. The largest projected occupation groups for LWIA 23 between 2016 and 2026 include manufacturing, health care and social assistance, retail trade, educational services, leisure and hospitality, professional and business services, agricultural production, government, and transportation and warehousing occupations.

[1] LWIA 23 includes the following counties in Lake Land's district Clark, Clay, Coles, Crawford, Cumberland, Douglas, Edgar, Effingham, Fayette, Jasper, and Moultrie. It also includes Lawrence, Marion and Richland counties. It does not include the remaining four counties in Lake Land's district: Christian, Macon, Montgomery, and Shelby.

PART IV. ECONOMIC/FINANCIAL FACTORS

Decrease in Government Support of Higher Education

For many years, there has been a sustained decrease in government funding to support community colleges, thus increasing the financial burden on students and their families. Community colleges provide an affordable alternative to four-year universities and important pathways to four-year degrees, careers and vocational training. Despite this vital role in American higher education, community colleges receive $8,800 less in education revenue per student enrolled than four-year institutions, according to an analysis from the Center for American Progress. Yet, data available at the National Center for Education Statistics shows Pell Grants covered more of the total price of attendance for students at public two-year institutions compared to public four-year institutions, private nonprofit four-year institutions, and private for-profit institutions in all selected academic years between 2003–04 and 2015–16.

According to a Data Points posting by the American Association of Community Colleges (AACC), in the 2017-18 academic year community colleges received 33% of all distributed Pell Grant funds even though they enrolled nearly 41% of all undergraduates. Furthermore, students at community colleges received a smaller share of other federal Title IV funds relative to their share of enrollment. AACC reports that community colleges enroll an even higher percentage of low-income students (46% of students in the bottom income quartile) than the rest of higher education. Thus, AACC's legislative agenda includes numerous funding policy recommendations such as:

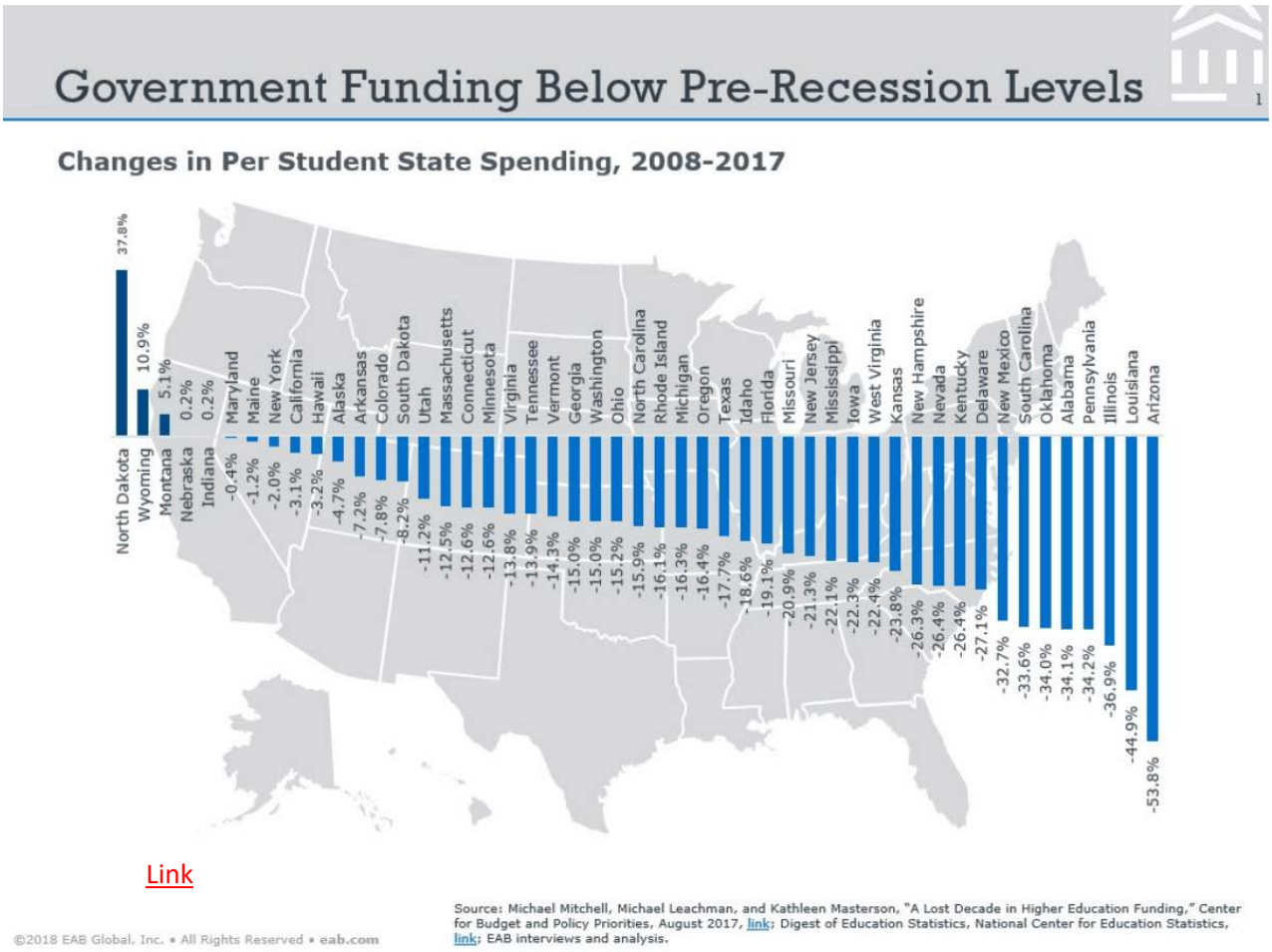
- Preserve and enhance the Federal Pell Grant program, which is the foundation of student aid for millions of financially needy college students.
- Extend Pell Grant eligibility to short-term training programs offered by institutions of higher education.
- Increase the maximum Pell Grant annually to maintain its purchasing power.
- Support federal investments in higher education by providing sufficient funding allocations for domestic discretionary programs.
- Support the Federal Supplemental Educational Opportunity Grant (FSEOG) and Federal Work-Study programs, which enhance community college student enrollment and success.

From an article Recognizing the Reality of Working College Students, published in an American Association of University Professors Winter 2020 report, the cost of college attendance has been rising faster than family incomes, and increases in federal, state, and institutional grants have been insufficient to meet all students' demonstrated financial needs. According to Perna & Odle (2020), between 2008–09 and 2017–18 academic years, average tuition and fees increased in constant dollars by 36% at public four-year institutions and 34% at public two-year institutions, while median family income rose by only 8%.

In a 2019 report, the Century Foundation, a nonpartisan progressive think tank, recommended that to spur student success, state and federal policy makers should begin increasing funding for community colleges in the short term and better research to estimate the financial needs of two-year institutions. A group of more than 20 education experts found that community colleges are deeply underfunded even as they are more likely to enroll socioeconomically disadvantaged students than four-year institutions. The report states, "The lower levels of spending in community colleges -- coupled with the greater needs, on average, in community college student bodies -- is important because research suggests that greater resources are connected to better outcomes for students in higher education."

According to Mitchell, Leachman, & Masterson (2017), overall state funding for public two-year and four-year colleges has decreased by more than $7 billion in the ten year period between 2008 and 2018 (See Figure 3 below for a state by state comparison). Illinois has been a strong participant in this phenomenon. According to the Illinois Board of Higher Education (IBHE) and the Illinois Community College Board (ICCB), Illinois has cut

higher education funding by half since fiscal year 2002. Additionally, the state is providing about 16% of community college funding, with property taxes and tuition making up 42% each – a drastic change from the state's original funding model for community colleges that was to be one-third for each of these three sources. The impact of this lack of investment has forced Illinois colleges and universities to shift the burden to its students. The average in-state tuition costs for public four-year colleges and universities has increased 136.3% (adjusted for inflation) between FY 2000 and FY 2017. According to the Illinois Community College Board, the average tuition and fee costs for community colleges in Illinois has increased 163.9% (not adjusted for inflation) between FY 2000 and FY 2018. With state appropriations less than they were two decades ago and with the rising cost of tuition at public colleges and universities, the hardest hit students of this snowball effect are low-income and minority students.



Illinois appropriations for higher education in FY 2020 remained almost 50% less than it was in FY 2002 after adjusting for inflation despite the fact that higher education can positively impact both individuals and communities economically. It is clear that higher education enhances an individual's employability as well as their earning potential. During the recession of 2010, having a bachelor's degree decreased an individual's risk of unemployment. In fact, the unemployment rate for college graduates was 6.9% compared to 15.8% for all young workers, and the poverty rate for college graduates was 3.5 times lower than for those with high school diplomas. Education also impacts an individual's earning potential. Over a lifetime, a bachelor degree holder can make an average of $1 million in additional earnings compared to individuals with only a high school diploma while an associate degree holder can earn approximately $420,000 more over a lifetime than someone without a degree.

Despite the evidence that an educated workforce benefits communities, Illinois continues to underfund higher education, especially its community colleges. While Illinois' low-income and students of color are more likely to attend community college, Illinois community colleges receive a fraction of per student funding received by Illinois four-year universities. In fact, in FY 2020 Illinois community colleges needed about $900 million from the state, but received only $250 million in funding. Furthermore, public four-year colleges per student funding increased by 16% between the 2003-2004 and 2013-2014 academic year, however, the per student increase for community colleges during the same time period increased only 4%. Disadvantaged students with the greatest educational needs outnumber students from the wealthiest quartile by two to one at community colleges. On the other hand, selective four-year colleges are much more likely to enroll students from the highest socioeconomic quartile rather than the lowest quartile. In other words, selective four-year universities only enroll one disadvantaged student for every fourteen students from wealthy families.

Evidence suggests a correlation between higher state per-pupil funding for community colleges and improved academic outcomes for disadvantaged students. States that spend more money on community colleges (i.e., Wyoming, Alaska, and North Dakota) have higher than average completion rates. Deming and Walters (2017) found a significant relationship between spending and degree attainment, and these relationships were stronger for community colleges than four-year institutions. They found increasing spending results in an increase of 14.5% in certificates and degrees awarded in the next year and an increase of 14.6% of degrees and certificates awarded in the following year (year 3).

Despite this evidence, policies for two Illinois programs further widen the funding opportunities gap between community college and university students. The Aim High Pilot Grant Program, launched with the 2019-20 award year, provides assistance toward a full-time undergraduate student's cost of attendance at one of the state's 12 public universities, with community colleges being left out of the program. The state's Monetary Award Program (MAP) provides grant assistance to eligible Illinois residents who attend approved Illinois colleges and demonstrate financial need. In 2020, Illinois community colleges served more MAP-eligible students than all other higher education institutions combined (151,256 vs 141,143 applicants). However, only 11% of community college students received a MAP grant. This may be due, in part, to the fact that MAP funds are awarded on a first-come, first-serve basis. As a result, MAP funds are often exhausted in a given fiscal year by the time many community college students decide to enroll. In fact, more than 40% of MAP-eligible community college students are placed in suspense each year, meaning they meet eligibility criteria but the funds have already been exhausted in a given academic award year. In a September 2020 report, Mr. Eric Zarnikow, Illinois Student Assistance Commission (ISAC) Executive Director, states that since 2002 there has been more demand for MAP assistance than what ISAC has been able to award. Additionally, short-term community college certificate and training programs of less than 16 credit hours focused on workforce development and readiness have not yet been approved for usage of MAP funds.

The Illinois Council of Community College Trustees and the Illinois Council of Community College Presidents have included on their legislative agendas for years the need for a portion of new money allocated to MAP to be earmarked for community college students and to increase the amount of MAP grant funding. Based on local data, the average MAP grant a Lake Land College student received in award year 2002-2003 covered 66.5% of the total full-time tuition and fees costs. By the 2019-2020 award year, this fell to 27.7%. This significant decline in MAP's purchasing power is also reflected in the statewide ISAC report, covering only about 36% of the total tuition and fees costs when considering all Illinois community colleges.
The overall decline in higher education funding support by the federal and state governments has undoubtedly placed greater financial burdens on community college students and/or led to more students not being able to access higher education. Funds issued to colleges under the Higher Education Emergency Relief Funds (HEERF) have provided temporary institutional and student support from the pandemic fall-out but will not address the long-term needs for student affordability and access to higher education. Moreover, the economic and political pressures on Illinois' community colleges will likely remain for years to come in light of the ongoing state budget issues, population loss, and many college students choosing to attend out of state

institutions. However, federal policies may change in the coming years given national conversations about the potential for free community college for students. Examples are economic proposals by the Biden Administration, such as the American Rescue Plan, that if passed would provide for community colleges funds for technology and infrastructure updates, expanded opportunities for workforce development and two years of free community college tuition.

Individual Economic Uncertainty

Financial insecurity is a major concern for many community college students and plays a major role in students' inability to complete their higher education goals. A national survey conducted early in the pandemic showed four in ten community college students were affected by food insecurity and 11% experienced homelessness. Local data collected prior to the pandemic supports this national trend. A fall 2019 survey conducted with 557 students by Lake Land's PTK Chapter revealed that 73.8% of respondents reported experiencing financial struggles in their day-to-day life to pay for basic needs such as gas, food, and bills, and 72.8% of respondents reported having to work at least 11 or more hours per week.

According to a report from the Center for Community College Student Engagement (CCCSE), 47% of community college students completing a national survey reported that a lack of finances is an issue that could cause them to withdraw from college. Many community college students live at or below the poverty level forcing them to struggle to meet basic needs such as housing and food much less higher education. While 39% of these students receive PELL grants, PELL grants only meet part of their financial need. Since nearly 61% of Pell grant recipients live below the poverty line, it is no surprise that 40% of these students have to pair Pell grants with student loans to make ends meet. Research shows that 30% of students do not complete the forms that would make them eligible for financial aid including PELL grants. While some of these students indicated they do not need aid, others may benefit from financial assistance and with assistance completing the forms.

Key findings from the 2017 CCCSE survey conducted with 100,000 community college students from 177 institutions include the following points:

- Many students find themselves living paycheck to paycheck. In fact, 63% without children live paycheck to paycheck, while 74% with children live paycheck to paycheck.
- Many students do not have access to an emergency fund if an unexpected expense arose. In fact, 18% reported having access to $0, and only 39% could access $500 at most.
- Students who receive a Pell grant are more likely to set their goal for an associate degree over a bachelor's degree.
- The vast majority of respondents (90%) indicated they need information about financial assistance, and 27% of those students did not receive adequate financial information from their college.
- While 77% of students indicated they have the knowledge and skills to manage their own finances, 49% of these students reported running out of money one or more times in the past 12 months.
- Less than half of the students (45%) report no difficulties with paying their bills. However, 3% report they are falling behind, 10% report a constant struggle, and 41% report it is a struggle from time to time.

Changing Attitudes about the Value of Higher Education

According to the Georgetown Center on Education and Workforce, 65% of American jobs in 2020 required education beyond high school. In fact, three of the fastest-growing occupations –STEM, healthcare professional, and community services— also have the highest demand for postsecondary education and training. Given the estimate of 65% of jobs needing higher education and the fact that the US Census

estimates that only 41.7% of Americans have an associate degree or higher, more Americans need to receive additional education or training to be competitive in the workforce.

Over the years, the cost of a higher education has exceeded the rate of inflation. Between 2006 and 2017 the Consumer Price Index (CPI) for a higher education (tuition and fees only) has increased by 63% compared to 21% for all other items, such as food, energy, and housing. During this same time period, the cost of textbooks and college housing has increased 88% and 51% respectively.

Americans have significant concerns about the cost of higher education. In fact, according to one survey, 40% of Americans believe college degrees are not a good investment for most high school students due to the debt they will likely incur along with the struggle to find a good paying job. However, other surveys conducted found that most Americans (85%) strongly or somewhat agree that it is easier to get a good job with a college degree or trade certificate than without one. In fact, 89% of Americans agreed that students should pursue career or technical training or a two- or four-year college degree after high school. Furthermore, 52% of Americans are satisfied (44% somewhat) with the job that four-year colleges are doing and 63% are satisfied (51% somewhat) with the job that community colleges are doing. For those Americans dissatisfied with higher education, 55% indicated their dissatisfaction was due to the high cost of higher education and 43% reported colleges do not provide students with useful real world skills.

A 2019 report posted with the Pew Research Center highlights an undercurrent of dissatisfaction among the public about the role colleges play in society and skepticism that today's colleges are adequately preparing people for the workforce. Based upon analysis of numerous surveys of US adults since 2012 the report states:

- Only 16% say a four-year degree from a college or university prepares someone very well for a well-paying job in today's economy, while 51% say it prepares them somewhat well. For community colleges, only 12% say a two-year degree prepares someone very well for a job while 46% say it prepares them somewhat well.
- Between 2015 and 2018, the share of Americans saying they had a great deal or quite a lot of confidence in higher education dropped from 57% to 48%.
- From a 2019 survey, the portion of Americans indicating colleges and universities have a negative effect on the way things are going in the country has increased by 12 percentage points since 2012. Only half of American adults think colleges and universities are having a positive effect, while 38% report they are having a negative impact – up from 26% in 2012.
- Despite the public's increasingly negative views about higher education and its role in society, most Americans say a college education is important – if not essential – in helping a young person succeed in the world today. A 2018 survey found that 31% of adults say a college education is essential, and an additional 60% say it is important but not essential. However, far higher shares say a good work ethic (89%), the ability to get along with people (85%), and work skills learned on the job (75%) are essential for a young person to succeed.

Public skepticism for the value of higher education is evident in our own College district. According to National Student Clearinghouse data and the College's Office of Institutional Research, the percentage of in-district high school students choosing to forego a college education right out of high school increased steadily from 35% in 2017, 42% in 2018, 46% in 2019, and 49% in 2020. This data is based upon the total number of in-district high school juniors expected to graduate in the following reported year. Thus, we are challenged to help more district residents understand the lifetime value provided by higher education attainment. For example, according to the AACC, based on educational attainment, the median earnings for full-time employees include $26,200 for less than a high school diploma, $36,000 for a high school diploma, $42,600 for an associate degree and $60,100 for a bachelor's degree. This advantage was revealed even further with the 2020 pandemic. In a 2020 Forbes article, Michael T. Nietzel highlighted the relationship between various levels of education and unemployment before and during the pandemic. Based upon data from the Bureau of Labor, Nietzel identified a consistent link between education and employment before and during the

pandemic. At every point in time examined before and during the pandemic, he found adults (25 years and older) with a college degree were substantially more likely to be employed than adults without a college education.

The cost of higher education is on the rise, and students are paying more for a college education now than 20 years ago. Tuition for public colleges has quadrupled between 1980 and 2015. In fact, after adjusting for inflation, the cost of private colleges has increased by 129% since the 1980s and the cost of public colleges has increased by 213% during the same time period. In addition, wages in general have only increased by 67% since the 1970s. While a college degree does help with employment and income, the overall advantages are lesser today than they were ten years ago. Because the cost of public four-year degrees has tripled in the past thirty years, and more than doubled for private four-year colleges, paying for college with savings or investments is no longer a feasible approach for most families.

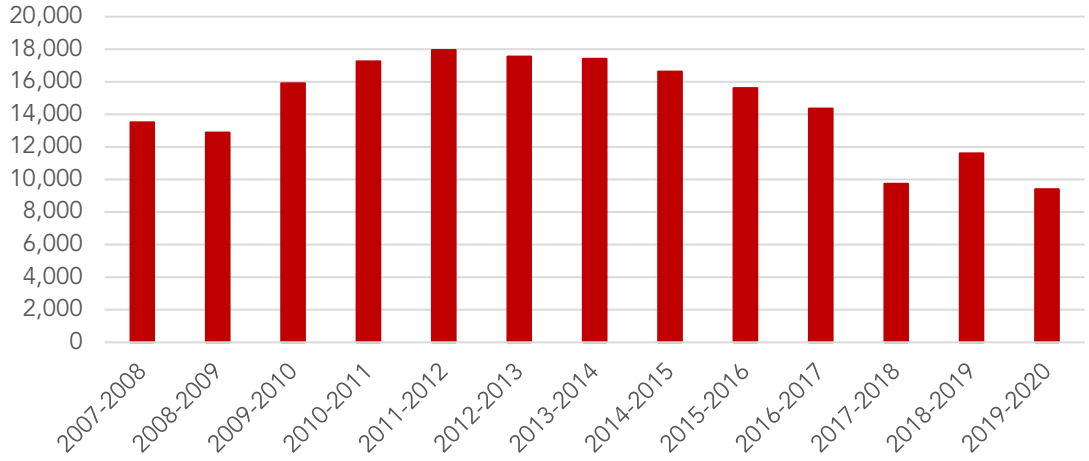
As a result, the rising cost of higher education is leading to increasing student debt. Both college tuition and student loan debt are at an all-time high. Around 54% of today's college students need to borrow money to pay for college. In fact, in 2020 the average student loan debt was around $37,500 for a collective debt of $1.6 trillion. Student loan debt is now the second highest consumer debt category, with 45 million borrowers owing almost $1.6 trillion according to Forbes. This debt is now more than credit cards and auto loans, exceeded only by mortgage debt. According to the Federal Reserve Board, 42% of adult Americans who attended college (i.e., 30% of all adults) borrowed money to pay for college. Twenty-two percent of these Americans still owe money on their student loans, while the remaining 20% have paid off their education loans. The normal monthly payment for student loan repayments ranges between $200 and $300. Of the Americans who have incurred debt from higher education, 11% are currently behind in their payments, 42% are current on their outstanding debt, and 47% have completely paid off their loans. It is estimated that 40% of student loan borrowers are expected to default on their loans by 2023.

There are numerous ideas under consideration with national leaders to address the student-debt crisis such as automatic enrollment in income-driven repayment plans and even the potential for student loan cancellation up to a certain threshold.

Declining Enrollment at Community Colleges

Nationally community college enrollment has experienced a steady decline since the fall of 2016. Lake Land College has witnessed first-hand this declining enrollment. Between 2009 and 2020 the College has had a 27% decrease in annual student enrollment (excluding the Department of Corrections). Lake Land experienced a 10.3% decrease in college student enrollment between fall 2019 and fall 2020, which closely resembles the national decrease in community college enrollment of 9.4%. See Figure 4 below for the annual enrollment of students at Lake Land College between fiscal year 2007-2008 and 2019-2020 excluding DOC students. According to a new report from the National Student Clearinghouse Research Center, the spring 2021 semester experienced the largest year-over-year enrollment drop in over a decade at United States colleges and universities. Total enrollment fell by 3.5% in spring 2021 compared to spring 2020. However, community colleges experienced heavier enrollment declines than four-year universities in spring 2021. Their enrollment declined by 9.5% between spring 2020 and spring 2021.

Figure 4: Lake Land College Annual Enrollment
(Excluding DOC)



While in the past, economic downturns have led to increased enrollments at community colleges, this has not happened during the COVID-19 pandemic. Speculation existed that community colleges would observe increases in enrollment in fall 2020 due to the economic downturn and transfer of four-year students to community colleges, but this did not happen. The spring 2021 semester did not fare much better than fall 2020. According to the National Student Clearinghouse, community colleges have seen a 12.1% enrollment decrease for full-time students and a 7.9% decrease for part-time students between spring 2020 and spring 2021. Unfortunately, the largest decline in enrollment seems to be with freshmen and first-time students. Freshmen enrollment at community colleges nationally is down by 22.7% and 16.1% for both colleges and universities, while first-time student enrollment accounts for 69% of the total decrease in undergraduate enrollment. Declining enrollment at community colleges has the potential to create budgetary challenges for community colleges as well as workforce challenges for community businesses and industry.

PART V. SOCIAL FACTORS

Mental Health & Social Isolation

Today's college students are sometimes called the "anxious generation" and are more likely than the two generations before them to discuss mental health issues. While the current generation is more open to mental health issues, most people with mental illness today are still not receiving the treatment they need including college-aged people. Only 44% of adults and less than 20% of children and adolescents with a diagnosed mental health problem actually receive the treatment they need, and 67% of people 18 to 24 with anxiety and depression do not seek treatment. According to Active Minds, half of mental health issues begin by age 14 and 75% begin by age 24 with higher rates of diagnosed disorders in college-aged students. Traditional aged college students, who range in age between 17 and 24, fit perfectly into this age range. In fact, the American Psychological Association (2018) reports 35% of college students struggle with mental illness, while Active Minds reports that 39% of students in college experience a significant mental health issue.

In 2019, the American College Health Association (ACHA) stated in the past year "87% of college students felt overwhelmed by all they had to do, 66% felt overwhelming anxiety, 56% felt things were hopeless, and 13% seriously considered suicide." Mental illness does not always begin during college. Many students enter college with preexisting mental health disorders. For example, over 80% of students who consider suicide during college, first thought about suicide before entering college. The ACHA also reports that 60% of college students suffer with anxiety and 40% have depression.

The COVID-19 pandemic has not made things easier for college students. According to Dennon (2020), the biggest impact of the COVID-19 pandemic could be psychological and suggests the forced social isolation and financial strain caused by the pandemic has intensified mental health issues for college students.

Active Minds conducted a survey of 2,051 students examining the impact of the pandemic on mental health. The participants reported increased feelings in the following areas:

- 75% related significant worsening of their mental health since the beginning of the pandemic,
- 84.25% experienced increases in stress,
- 82.35% experienced increases in anxiety,
- 73.23% experienced increases in sadness, and
- 60.7% experienced increases in depression.

According to Dennon (2020), social isolation provides a significant challenge for linking the most at-risk students with mental health services. The transition to mostly online courses during the pandemic has made it easier for isolated students to withdraw and avoid social interactions with others. When examining the combination of isolation with the economic impact of COVID on at-risk and low-income students, mental health concerns for this group increase. Many students who worked part-time before the pandemic are no longer working and are struggling to cover their basic needs. In addition, mental health problems can negatively influence academic performance which, in turn, may impact future earning potential. Furthermore, Dennon (2020) indicates these students struggle to access student support services such as tutoring and career services as well as mental health services. Finally, many of them face technology barriers at home and lack the access to stream classes from home.

Hefner & Eisenberg (2010) found that while some students (i.e., minorities and low socioeconomic status) are at a higher risk of social isolation, high quality social support can reduce the risk of depressive symptoms in students by six fold when compared to students with low quality social support. According to Dennon (2020), the request and demand for mental health counselors at colleges has increased over the past ten years as

more students feel comfortable seeking assistance with mental health issues. However, in a survey conducted at the University of Michigan, 60% of college students who tried to access mental healthcare reported the pandemic made accessing these services more difficult. As a result, some colleges offer tele-therapy programs which include virtual one-on-one counseling, harm reduction services, and support groups. In fact, in FY 2021, Lake Land College began a partnership with BetterMynd to provide students with tele-therapy access. Since the pandemic has encouraged many colleges to improve and expand their online offerings, it is feasible that virtual mental health services may also expand as long as deep budget cuts do not threaten already underfunded and understaffed mental health services.

To further exacerbate social isolation issues, the amount of time college students spend socializing has decreased dramatically over the past twenty-five years. In 1987, two-thirds of students (66%) reported spending sixteen or more hours socializing with friends on a weekly basis, and in 2014 this percentage dropped to 18%. In fact, 38.8% of college students in 2014 reported spending five or less hours a week socializing with friends. However, college students are spending more time mingling with friends through social media. The percent of college students spending more than six hours a week on social media has increased from 18.9% in 2007 to 27.2% in 2014. In conjunction with decreasing face-to-face socialization are increasing feelings of low levels of emotional health and loneliness, which can lead to feeling disengaged from school, boredom in the classroom, and decreases in the likelihood of participating in study groups.

According to the National Center for Education Statistics (NCES), in fall 2018, 35.5% of all enrolled college students took one or more online course(s) during that semester. The separation from instructors and other students in online courses can contribute to feelings of isolation, which in turn can lead to feelings of confusion, anxiety, and frustration. In addition, Vargas-Madriz (2018) indicates social isolation can increase educational barriers including a lack of motivation or poor academic achievement. Students feeling isolated from classmates and instructors in virtual learning formats may be more likely to drop the course (Tello, 2007; Ali & Smith, 2015). In addition, when compared to students participating in face-to-face environments, online students tend to have lower grades (Capra, 2011). According to Protopsaltis & Baum (2019), on average students participating in online courses underperform and experience poorer outcomes than students in face-to-face courses. This is especially true for underprepared and disadvantaged students.

Diversity, Equity and Inclusion

The Political Perspective

Respect for and acceptance of diverse individuals as well as awareness and educational opportunity for underrepresented populations are topics that have come to the forefront for national and state public policy discussions. From the public outrage of the death of George Floyd to the profound, pandemic-related economic fallout, institutions of higher education will be tasked and scrutinized to develop policies and procedures that appropriately address issues of diversity, equity and inclusion.

The Association of Community College Trustees (ACCT) published a 2020 guide that provides community college boards a checklist and implementation roadmap of critical steps they must take in order to implement policy through a diversity, equity and inclusion lens. ACCT states that the governing board's role is pivotal in impacting college culture by shaping and supporting goals, policies, practices, and college procedures that promote equitable experiences, opportunities, and outcomes. The ACCT guide states:

> Educational equity depends on fairness and inclusion in the educational system and includes equity in various categories: socio-economic, racial, ethnic, gender, gender identity, and disability, among others. Institutions of higher learning have an imperative to avoid discrimination and to support disadvantaged students whether the issues are income and class; race; religion; gender, sexual orientation or gender identity; immigration, incarceration or military status; country of origin or ability.

In December of 2020, an omnibus bill passed by Congress and later signed into law by then-President Trump, provided a second round of Covid-19 funding relief to higher education but it also included some welcomed policy changes to provide greater access to more underrepresented and disadvantaged students including:

- Simplifying the Free Application for Federal Student Aid (FAFSA) process for federal student aid, reducing the number of questions from 108 to 36, and streamlining the income-verification process by using data from the Internal Revenue Service. FAFSA changes will take effect for the 2023–24 award year.
- Forgiving more than $1 billion in federal loans to historically Black colleges.
- Expanding the Pell Grant program to people who are incarcerated. The U.S. Department of Education has until 2023 to reinstate Pell Grant access to people in prison, a policy previously banned under the 1994 Violent Crime Control and Law Enforcement Act.

Nationally, President Biden issued numerous presidential memorandums and/or executive orders that underscore his new administration's prioritization for a comprehensive set of policies addressing diversity, equity, and inclusion. Following are just a few of those directives that impact higher education:

- Repealing former President Trump's executive order that barred diversity training by federal grantees and contractors.
- Asserting that Title IX's protections based on sex extend also to sexual orientation and gender identity, welcome news for many transgender students and their advocates. Alphonso David, president of the Human Rights Campaign, stated "Biden's executive order is the most substantive, wide-ranging executive order concerning sexual orientation and gender identity ever issued by a United States president."
- Extending the moratorium on federal student-loan payments through September 2021 due to the pandemic.

The economic and fiscal benefits for providing inmates access to postsecondary education in prison is highlighted in a 2019 report published by the Vera Institute for Justice and the Georgetown Center on Poverty and Inequality. Based upon data for reductions in recidivism rates associated with prisoners' access to education, this report cites potential savings to each state if Pell Grant eligibility was restored to inmates, with projections that Illinois could save between $8 million and $26 million annually on incarceration costs. Lake Land College has developed an extensive and primary partnership with the Illinois Department Corrections to provide educational services to inmates at numerous facilities throughout the state. However, Illinois inmates face various access challenges such as whether or not a particular correctional facility has a contract with an educational provider or wait lists for entry into the various educational programs that are constrained by the state budget. With the restoration of Pell Grants to incarcerated people, Margaret diZerega, director of the Center on Sentencing and Corrections at the non-profit Vera Institute of Justice, says there could be an increase in the number of colleges and universities teaching inside prisons. This may ultimately impact the number of correctional facilities Lake Land College continues to serve in the future.

Another key equity issue for community colleges is access to and success in higher education for lower-income individuals, an issue even more critical with the pandemic and the fact that low-wage workers have been disproportionately affected with greater job and financial losses in comparison to higher-paid employees. Even prior to the pandemic, poverty within Lake Land's district was widespread with 25 of the 31 public K-12 school districts having 40% or more of their students classified as low income based upon 2017 data.

National post-secondary organizations such as Achieving the Dream (ATD) have been promoting reform efforts to dismantle barriers and biases and support institutions in implementing solutions designed to close equity

gaps so all students succeed. In 2020, ATD hosted a data summit with this focus, encouraging higher education institutions to consider additional metrics that will better capture and support the success of underrepresented and underserved students. Higher education institutions will be encouraged to adopt these types of best practices and engage the entire college community in better understanding underrepresented and underserved students and how diversity, equity, and inclusion impacts student outcomes.

In June 2021, the Illinois Board of Higher Education (IBHE) officially approved its new strategic plan designed to close achievement gaps among low-income, first generation, working adults and rural students as well as minority students. Low-income and minority students are less likely to acquire a college degree than their white peers. In Illinois, 47% of white adults have a post-secondary degree compared to only 29% of African Americans and 20% of Latinx adults. When looking at Bachelor Degrees only, Illinois has the 11th largest gap of any state in education attainment between African American adults and white adults and the 7th largest gap between Latinx and whites.

In addition, undergraduate enrollment overall in Illinois has dropped by 19.4% between 2013 and 2019; however, undergraduate enrollment of Black students declined by 34% compared to a 30% decline for white students during this time period. While Latinx enrollment has increased by 8%, this population tends to withdraw from college at disproportionate rates. Enrollment for low-income students decreased by 33% between 2013 and 2019, and low–income students are less likely to be retained and complete a degree compared to their non-low-income peers. While rural students are retained at the same rate as non-rural students, they are less likely to attend college and are more likely to have some college with no degree than non-rural students. IBHE's new strategic plan is designed to address some of these disparities for these populations.

As noted earlier, on average the counties within Lake Land's district are 96.3% white alone. Additionally, 1.7% are black alone, 1.1% are two or more races, and 0.3% are Native American and 0.6% are Asian. Lake Land College's degree and certificate seeking student population is 89.6% white, 5.1% black, 1.1% Asian or Pacific Islander, and 4.0% unknown. While the student population at Lake Land in FY 2020 was more diverse racially than the county population, it had a much larger percentage of first generation and low-income students. Almost 40% of Lake Land's degree seeking students were low-income and about 35% were first generation students. In terms of age, 36.8% of Lake Lands students in FY 2020 were non-traditionally aged students (24 years and older), and 90% were in-district students indicating the vast majority were from rural areas. At this point in time, the College does not collect information related to working students but will begin collecting this information in the fall of 2021. While only about 10% of Lake Land's students are minorities, Lake Land does have a large diverse student population in regards to adults, low-income, first generation, and rural students, which meets a number of the populations identified in IBHE's new strategic plan.

Lake Land also serves non-degree seeking students. These students include students who are seeking non-credit training opportunities as well as adult education (GED) and English as a second language (ESL) students. Lake Land had 197 adult education students in FY20 and 31 ESL students. Of these 228 students, 38% were male and 62% were female. Adult education and ESL students tend to be fairly diverse. In fact, 19% were Hispanic[2], 3% were Asian, 1% were Native American, 6% were Black, less than 1% were Alien, and 77% were White. Although Lake Land does not collect income data from adult education and ESL students, based on US Census data, the assumption can be made that the majority of adult education and ESL students are low-income. US Census reports that on average GED holders earn about $3,100 per month compared to high school diploma holders, who on average earn $4,700 per month. GED holders are also less likely to attend college and to complete a college education than students with a high school diploma. Only 43% of GED

[2]Adding the percentage breakdown of ethnicity together will equal over 100%. This is due to the fact that some students report Hispanic descent as a race only and do not indicate if they are Hispanic Black or Hispanic White, while other report both Hispanic descent and race.

holders attend postsecondary education compared to 73% of high school diploma holders. In addition, only 5% of GED holders earn a bachelor's degree or higher compared to 33% of people with a high school diploma.

The Educational Perspective

According to the Indicators of Higher Education Equity in the United States — 2019 Historical Trend Report, even though colleges continue to enroll students and award degrees, inequalities, especially wealth and race-based inequalities, in U.S. higher education opportunities continue to grow. Wealth based inequalities (e.g., socioeconomic status (SES)) encompass income as well as educational attainment, financial security, and subjective perceptions of social status and social class (American Psychological Association (APA)).

A long history of research links low SES with a number of educational attainment issues that begin at the preschool level and follow these students through to college enrollment, college completion, and attainment of advanced college degrees. Examples of some of the inequities that exist for children and college students of families with low SES include:

- Poor cognitive, language, and memory development.
- Under-resourced K-12 school systems that negatively impact academic progress.
- Fewer well-qualified teachers in the K-12 system.
- Increased K-12 dropout rates.
- Literacy gaps beginning in childhood.
- Less access to learning materials and experiences such as books, computers, and tutors.
- Higher drop-out rates.
- Lower success rates in STEM majors.
- Eight times LESS likely to obtain a bachelor's degree by age 24 when compared to individuals in top family income quartile.
- More likely to display learning-related behavior problems.
- Decreased educational success.

The impact of growing up in a low-income family extends well beyond the K-12 experience. Walpole (2003) found that low-income students in college participated in fewer extracurricular activities, worked more hours, studied less, and reported lower GPAs than their high income peers. Nine years after entering college, the low-income students had lower incomes, educational attainment, and graduate school attendance than their high-income peers. Parental education levels not only impact the family income level but a child's degree attainment as well. Ma & Baum (2016) found 18% of community college students with at least one parent with a bachelor's degree and 16% of those with a parent with an associate degree obtain a bachelor's within six years compared to only 8% of those whose parents did not attend college and 10% of those with parents who had some college. Federal statistics indicate 50% of students from families with annual incomes at or above $90,000 graduate. However, only one in 17 students whose annual family income is under $35,000 graduates from college.

Economic insecurities and disparities, exacerbated by the pandemic, continue to exist for people of color and low-income communities which often overlap. The pandemic has caused many issues for low-income communities. It has caused high rates of unemployment for people without college degrees and has reduced low-wage jobs by the millions. The pandemic also forced community colleges to shift the majority of their courses to a virtual format. While virtual formats provide opportunities for many students struggling to attend face-to-face courses, they can also provide additional barriers for students, especially minority and low-income students. For example, according to Hecker & Briggs (2021) below average reading comprehension and little exposure to technology can result in educational disparities. Furthermore, low investment in broadband

infrastructure in communities of color added to high costs of devices and Internet service result in unequal access to technology making online participation more challenging for these students.

According to Anderson, Briggs, Spaulding, Zamani-Gallaher, & Lopez (2021) developing skills for in-demand workforce areas can enhance income and mobility for communities of color and low-income families. Career and Technical Education (CTE) is designed to do just that which highlights the importance of community colleges for these communities. In fact, community colleges are extremely vital institutions for preparing learners for the workforce, since they award the majority of career-oriented credentials in the country. According to Spaulding, Hecker, & Bramhall (2020), community colleges are distinctively situated to close enduring equity gaps in the labor market due to the following factors:

- Have a diverse student body (40% of community college students are Hispanic or African American);
- Provide degrees and certificates designed to prepare students for the workforce;
- Provide skills and the knowledge base for jobs and careers;
- Partner with employers; and
- Enroll approximately 7 million students in credit producing programs.

According to Ma & Baum (2016), community colleges play a vital role in American higher education. Not only do they serve a large proportion of minority, low-income, first generation, and adult learners, but they provide quality work based learning experiences that can put these learners on a track to financial security and upward mobility. Furthermore, their open admission policies, lower tuition rates, and close proximity to home makes them a key resource for obtaining a higher education or work force credentials for students from low-income and lower education households.

Community college students can be different than their four-year counterparts in a number of ways that can impact their educational success. Ma & Baum (2016) reported the following about community college students when compared to students from other types of institutions. Community college students:

- Are more likely to work full-time and enroll part-time than their four-year counterparts.
- Are less likely to borrow money than other students, and if they do borrow, they usually accumulate lower amounts of debt.
- Are more likely to fail to pay on their student loans.
- Are more likely to be older.
- Are less likely to apply for financial aid.
- Are more likely to live in low-income households.

The Community College Research Center (CCRC) conducted a study examining racial disparities and found differences related to how students from differing racial groups enter and progress through programs of study. The study found the following results:

- Black and Hispanic students are less likely than White students to complete certificates and associate degrees.
    - Black students tend to drop out from higher-value workforce programs.
    - Hispanic students tend to earn credentials in lower-value than higher-value workforce programs.
- Black and Hispanic students are less likely than White students to transfer to a four-year college.
- Black and Hispanic students are less likely than White students to earn a bachelor's degree.
- Reaching important academic milestones such as completing a gateway course, completing a certain number of college level credits, and completing a transfer oriented associate degree boosts the likelihood of long-term success more for Black and Hispanic students than for White students.

Remedial Education

Equity advocates have also promoted policies to reform developmental or remedial education, classes that cost students money and time but do not count for credit toward a degree. A 2015 guide published in partnership by a group of national organizations such as AACC, Achieving the Dream, and Complete College America along with numerous state agencies highlighted a set of core principles for guiding remedial education reform efforts. A 2020 joint report issued by the Illinois Board of Higher Education (IBHE) states developmental education is linked to access, equity, and completion issues in higher education with students of color, lower-income students, and first-generation students being more likely than their white middle and upper-class peers to be placed below the level of coursework that generates college credits.

In Illinois, nearly half of all high school graduates who enroll full-time at a community college are placed in a developmental education course. Based on data from the Office of Institutional Research at Lake Land College, of the first-time, degree-seeking students entering Lake Land in the fall of 2019, 73.2% assessed into a math developmental course, 44.7% assessed into an English developmental course, and 44.2% assessed into a reading developmental course. Additionally, 36.9% of this cohort assessed into a developmental course in all three categories for math, English and reading. In March of 2021, Governor Pritzker signed into law the Illinois Developmental Education Reform Act, which requires public community colleges to submit plans by May 1, 2022, for implementing developmental reforms that will maximize the probability that a student will enter and complete college-level coursework in English and mathematics within two academic semesters.

This Act also builds upon an approved recommendation from the Illinois Council of Community College Presidents in 2018 to allow consideration of "multiple measures" in determining college readiness and initial course placement such as using high school GPA or transition classes. This allows colleges to take a broader look at a student's past performance instead of relying solely on traditional placement testing. In March 2021, Lake Land College adopted revisions to relevant policies to incorporate the multiple measures framework, well ahead of the Act's deadline for adoption by May 1, 2022.

PART VI. ACADEMICS & TECHNOLOGY

Students and Technology

While the increase in usage of technology for educational purposes has many advantages, it can also be perceived as a challenge and barrier for potential higher education students with limited access to computers, reliable Internet, and/or limited computer skills.

Over the past several years, the U.S. Census has included questions on community surveys related to computer and Internet usage from home. Based on the U.S. Census Bureau's QuickFacts from 2019, 88.3% of households in Illinois have a computer and 80.6% of Illinois households have Internet. While an average of 83% of residents in Lake Land College's district live in households with a computer, only 73.8% of households have an Internet connection at home. However, these data do not provide information related to the quality of these Internet connections. The majority of Lake Land's district is rural. This means, while households may have Internet connections, these connections may not be able to support streaming or Internet usage that requires a lot of speed and/or bandwidth.

If students are uncomfortable with technology before enrolling in college or have limited access to technology at home, the idea of taking a virtual course may overwhelm them. The 2020 Covid-19 pandemic forced the issue of virtual learning to the forefront for most colleges and universities in the spring of 2020. At mid-term during the spring 2020 semester, all of Lake Land's courses were forced to move to a virtual delivery method due to the pandemic. The College conducted a transition survey with both students and full- and part-time faculty. The student survey had 578 respondents, and the faculty survey had 96 respondents. Both students and faculty experienced technology issues with the virtual format.

Students Responses

- 32% of students reported access to reliable Internet was a challenge for them.
- 36% reported instructor discomfort or lack of familiarity with technology and software as a challenge.
- 31% indicated their own discomfort and lack of familiarity was a challenge.
- 26% reported confusion around which technologies and software they were required to use.
- 53% reported that they have a personal preference for face-to-face learning.
- 43% have difficulty focusing or paying attention to remote instruction or activities.
- 37% report course lessons or activities haven't translated well to a remote environment.

Faculty Responses

- 41% of the faculty respondents had never taught virtual classes before spring 2020.
- 78% reported student discomfort or lack of familiarity with required technologies.
- 40% reported access to reliable Internet service as an issue.
- 38% reported a lack of adequate digital replacements for face-to-face collaboration tools as an issue.
- 37% reported their own discomfort or lack of familiarity with required technologies as an issue.
- 58% reported they have a personal preference for face-to-face learning.
- 57% struggled with student response and availability.
- 43% struggled with translating course lessons or activities into a virtual environment.
- 27% struggled with their limited knowledge of options for virtual course delivery.
- 26% struggled with their lack of familiarity or comfort with virtual application and tools.

While the COVID-19 pandemic has accelerated the transition to online and hybrid courses as well as the use of technology in the classroom, it has also highlighted the differences in access to and use of technology resources for students. As higher education continues to rely on and/or expand its use of technology for course delivery and learning experiences, the disparity between students with technology advantages (i.e., high speed Internet, high end devices) and those who struggle to access basic technologies will continue to grow.

Unfortunately, this disparity does not start at the college level. Instead, it begins during the formative education years and can have a long term impact on academic achievement. Even before the pandemic, students without computer or Internet access lag behind their peers in reading and math achievement. Based on national standardized test scores, fourth grade students without full access to technology (e.g., Internet and computers) lag roughly 9 and 14 months behind their peers in math and reading, respectively. By the time students reach eighth grade, they fall roughly 27 months behind their peers with full technology access. Areas with high access to technology should not presume they are immune to this phenomena. Eighth grade students without access to technology in these areas are even further behind their peers (on average 40 months) in math and reading.

These findings are not limited to the K-12 population. Gonzales, Calarco, & Lynch (2018) also found a gap between college students. While the majority of students in the study had access to laptops and smartphones, 20% of students had issues maintaining access to effective technology. In other words, these students used older, less reliable devices, did not have access to reliable Internet, and/or could not afford additional data for their phone. Of course these issues were more common for low-income and minority students. After accounting for demographic differences, students with technology problems were more likely to have lower grade point averages and were less likely than their more affluent peers to ask instructors for help or prolonged deadlines due to their technology problems.

Teaching Using Multiple Methods

The National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS) latest data reveals that in fall 2018 35.3% of college students were enrolled in virtual courses at higher education institutions. This percentage was more than doubled (73%) at for-profit institutions while only 34.1% of students at public institutions were taking online courses. According to Koproske (2018) between 2012 and 2016 enrollment in online courses at four-year universities increased in the following ways 1) exclusive online enrollment grew by 16%, 2) hybrid or some online enrollment grew by 39%, and 3) exclusive face-to-face enrollment declined by 7.3%. Nationally, for community colleges in the fall of 2018, 14% of students were taking only online courses and 34.9% of community college students were taking at least one course online. In Alaska and North Dakota, 70% of community college students were taking at least one online course, and in 17 other states the percent of students taking at least one online course exceeded 40%.

As a result of the appeal for online courses for a substantial portion of learners, faculty need to be prepared to teach using multiple teaching methods including online and face-to-face as well as blended formats. Many faculty struggle with the efficacy of online learning. Findings from a 2017 faculty survey indicate 79% of faculty believe online learning provides more accessibility to students, but less than 50% of faculty are confident in the effectiveness of online learning. These faculty preferred teaching face-to-face with no or very limited online elements. However, most faculty felt integrating various technologies, such as multimedia production (70%), free web-based content (60%), learning management systems (60%), online collaboration tools (60%), and simulations and educational games (58%) would enhance their instruction. The course instructional methods taught by faculty closely resembles their opinion of online learning. Faculty who believe online environments provide effective learning opportunities for students prefer to teach online, and faculty who are skeptical of the effectiveness of online learning environment prefer to teach face-to-face. Given the student demand for

increasing the use of technology in the classroom, it is crucial to discover strategies to encourage the use of technology in higher education.

Blending the traditional classroom approach with online components has become a more common method for instruction in higher education, especially during the FY2020 and FY2021 academic years due to the pandemic. In a fall 2020 survey of higher education institutions, 90% indicated they were implementing hybrid learning approaches. While hybrid and blended learning are used interchangeably, there is a difference between the two terms. Blended learning refers to the use of online instruction to supplement traditional instruction, not replace it. In this situation, students continue to meet in the real classroom, while using online interactions to complete assignments, collaborate virtually with classmates, and meet virtually with the instructor. Hybrid learning relies more heavily on online instruction. Hybrid instruction can happen in the classroom or online.

Another blended approach to education involves the HyFlex model of teaching and learning. HyFlex combines a hybrid and flexible approach to education. It incorporates face-to-face (synchronous) and online (asynchronous) experiences. All participating students complete the same combination of online and in-person activities. However, it is flexible in how students can choose to participate in the course. Students have the choice to attend class face-to-face in a classroom, face-to-face via a video conference (e.g., Zoom), or fully online without face-to-face interaction. All meetings and materials are available to students online or in-person.

When teaching a HyFlex course, faculty should reexamine the student learning experience as well as how to engage students. All students need to have access to the learning resources, instructor and each other as well as be able to hear verbal interactions. All students need access to a chat space during class sessions. One of the main benefits of the HyFlex method is its flexibility. It allows institutions to maintain educational activities during times of natural disasters or health crises. The challenges involve consistently working technology, equivalent learning across the three options, and instructors comfortable with asynchronous learning integrated with face-to-face and synchronous learning. Ultimately, the HyFlex method can decrease barriers to enrollment and allow students with disabilities, who work, or have family responsibilities make progress on their educational goals. In fall of 2020, Lake Land implemented a HyFlex classroom to provide dual enrollment opportunities to students at five district high schools. Lake Land College is working towards expanding its HyFlex opportunities for students. During summer 2021, Lake Land expanded the number of classrooms with the technology necessary for conducting HyFlex classes from one to six classrooms across the main campus. Lake Land will continue to expand its capacity for HyFlex classrooms as ordered equipment becomes available.

If done correctly, blended approaches to education can combine the benefits of traditional instruction with online learning to create effective learning environments for students of all ages. A recent study conducted with undergraduate students in Iowa found students participating in blended classrooms were more likely to successfully complete the class with a C or better when compared to students in traditional classes and in online classes. In addition, students in the blended courses were less likely to withdraw. Finally, students in the blended course reported less anxiety at the end of the semester than those in the online only class. This may imply there is value for having face-to-face interactions with faculty and peers in classroom settings.

Growing Importance and Utility of Blended Learning

The results of a national student survey conducted by Partners (2019) reveals that the majority of students (55%) prefer college classes that blend face-to-face with online elements. While 38% reported preferring completely face-to-face courses, only 7% reported preferring completely online. The remaining 55% prefer classes that integrate both technology and face-to-face elements. From the academic perspective, over three fourths of academic leaders (77%) believe that learning outcomes are the same for online and face-to-face courses.

Over the past two decades, most institutions of higher education have adopted some form(s) of online learning. Given the continued preference of most students to have some form of face-to-face component, it is crucial to integrate student-teacher engagement into college courses and to monitor performance. Despite the use of discussion boards/forums in online courses, students continue to pursue face time with faculty and other students.

While there doesn't seem to be a specific common definition of blended learning, there does seem to be a consensus that when done correctly blended learning merges the best practices of both online and face-to-face learning. Research suggests that the combination of online AND face-to-face elements can provide learning advantages over fully online or fully traditional courses. Students in blended learning atmospheres may have better outcomes than students in fully traditional or online environments. During their study of blended learning courses, Stockwell, Stockwell, Cennamo, & Jiang (2015) discovered blended learning courses increased attendance at face-to-face classes, student satisfaction, and examination grades. Other researchers found blended learning increased retention. Other potential advantages for students include:

- Flexibility: students can decide when and where they learn and can concentrate more efforts on unfamiliar content.
- Collaborative and interactive learning: student collaboration increases the effectiveness of online learning. Discussion boards allow "quieter" students to share their thoughts, something they may not do in class.
- Immediate feedback: students can connect with instructors and classmates via email or discussion boards to ask questions and receive answers. Online tests can be graded automatically, allowing instant feedback.
- Multimodal content: the Internet provides a variety of materials (i.e., videos, podcasts, conference software, etc.) that can enhance engagement.

Institutions should be aware of some potential challenges facing faculty and students related to the implementation or utilization of blended learning. To encourage the success of implementation of blended learning, some researchers suggest institutions identify an institutional definition of blended learning. Other potential challenges include issues related to the access to technology for instructors and students, lack of technological support, inadequate training for faculty and students, lack of computer skills, and limited access to computer labs. When developing blended learning courses, instructors should evaluate their course design and identify which course elements best fit an online format and which should remain face-to-face.

Online Education Growing Globally

The online/virtual/remote/distance learning industry has grown exponentially (i.e., increased 900%) since the year 2000. Globally, digital learning is expected to double in size between 2020 and 2027, increasing from $250 billion in 2020 to $499.1 billion by 2027. Some of this growth can be attributed to the COVID-19 pandemic. Pre-pandemic growth estimates projected an increase to only $375 billion by 2026. While the pandemic impacted the acceleration of online learning, academia and industry had already begun to utilize online learning due to the reduction in learning costs, convenience, and improved learning outcomes.

In 2017, 19.7 million students were enrolled at higher education institutions across the United States. One-third of these students (6.6 million) enrolled in some form of an online/remote course, and 15.7% (3.1 million) were enrolled exclusively in online classes. Corporations are also taking advantage of online learning due to demonstrated learning outcomes, employee satisfaction, and business results. Online learning in business and industry is projected to increase 15% annually between 2020 and 2026.

Online or eLearning in the workforce/business and industry has increased by 900% since the year 2000 and 41.7% of Fortune 500 Companies across the globe use technology for training employees. ELearning approaches provide a number of benefits to business and industry including the following:

- Time saving: eLearning in the business environment requires 40 to 60% less time for employees than classroom settings.
- Increased retention: eLearning increases retention rates 25% to 60% while face-to-face training retention is only 8% to 10%.
- Increased knowledge retention: eLearning training can increase knowledge retention up to 60% because of how it engages students.
- Learn more in less time: Participants in eLearning training programs can learn five times more material without increasing time.
- Increased business revenue: 42% of companies using online learning report elevated revenue levels.
- Increased employee engagement: Companies can increase employee engagement by 18%.
- Adapt to change: 72% of companies report using eLearning technologies help them to adapt more easily to change.

Online learning management systems, platforms (i.e., Massive Open Online Courses [MOOCs]), and marketplaces are experiencing rapid growth and increases in enrollments, and 83% of higher education administrators are reporting increased demands for online programs because they provide more flexibility and smaller price tags. A 2018 study of higher education enrollment found while overall enrollment in higher education has experienced a 1 to 2% decrease annually, enrollment in online courses has increased by 5% annually. Snyder, Brey, & Dillow, (2018) found the following increases in relation to online enrollment activities:

- Undergraduate enrollment in one or more online classes increased from 15.6% in 2004 to 43.1% in 2016.
- Undergraduate enrollment in fully online programs increased from 3.8% in 2008 to 10.8% in 2016.
- Graduate student enrollment in one or more online courses increased from 16.5% in 2008 to 45.6% in 2016.
- Graduate enrollment in fully online graduate degree programs increased from 6.1% in 2008 to 27.3% in 2016.

Online Education during a Pandemic

The effects of the COVID pandemic over the past year have shaped and most likely reshaped the teaching and technologies used by higher education. A recent survey conducted with 1,702 faculty and administrators from 967 institutions found the following:

- Using digital materials increased from 25% pre-pandemic to 71% by March 2021, and 81% of respondents believe the use of digital materials will continue to remain the same or increase.
- Using online homework and coursework systems increased from 22% pre-pandemic to 58% by March 2021 with 74% expecting use to remain the same or increase in the future.
- Faculty perception of online learning and its tools are shifting. 57% of faculty are more receptive about digital learning materials, and 51% are more receptive to online learning than they were before the pandemic.
- Faculty changed their teaching techniques significantly. In fact, 71% reported teaching very differently than pre-pandemic and all but 8% will likely keep these changes. Furthermore, 47% report post-pandemic teaching will look very different than pre-pandemic teaching.

The pandemic forced higher education to adopt hybrid or blended learning models quickly. Many of these new models for teaching and learning have become permanent options. However, providing effective virtual learning environments involved faculty development and refitting classrooms to support the technology

needed. In fact, a study conducted in 2019 found high-performing institutions are more likely to set clear, measurable, public objectives for digital learning. Furthermore, these high-performing institutions involving digital learning environments dedicate sufficient resources for technology and professional development for faculty.

Even with the transition to more online course options and increasing usage of technology in education, a 2020 survey conducted with undergraduate students during the COVID pandemic indicates that a majority of students prefer face-to-face classes over other learning environments. In addition, a 2020 Pew Research Center survey revealed that 68% of American adults surveyed believe online learning does not provide equal learning to in-person learning. The majority of students preferred completely or mostly face-to-face. These findings reflect similar findings from a survey conducted in 2019. In 2019, 70% of college students reported preferring mostly or completely face-to-face classes while 73% of faculty reported the same. Despite this preference, about half of the 2019 student respondents reported some preference for combining some elements of both in-person and virtual learning.

A national survey conducted with undergraduate college students at two- and four-year institutions examined the abrupt transition to online courses due to the COVID pandemic in spring 2020. Student satisfaction with their courses decreased from 51% (very satisfied) prior to the transition to online to 19% after moving to fully online, and only 17% were very satisfied with how well they were learning in the course after the transition to online. When asked about the aspects of courses that suffered the most due to remote learning, students responded with the following:

- 65% reported opportunities to collaborate with other students were worse or much worse online,
- 57% reported keeping students interested in course content was worse or much worse online, and
- 50% thought making students feel included as a member of the class was worse or much worse online.

The survey also asked students to identify challenges they faced with the move to remote learning. Respondents identified the following challenges:

- 44% reported Internet connectivity issues that interfered with their ability to participate or attend courses occasionally, and 16% experienced these connectivity issues often or very often.
- Motivation was a challenge for the majority of students. 79% reported staying motivated to do well in the course after transitioning online was a problem.
- Finding a quiet place for their online course was a problem for 55% of respondents.
- 54% reported not knowing where to go for help with a course as a problem.
- Other challenges reported include:
    - missing peers and instructor presence,
    - lack of immediate feedback from instructor, and
    - loss of hands on experiences.

According to the National Center for Advanced Information and Digital Technologies (i.e., Digital Promise), past research has identified eight practices conducive to successful online learning and teaching. These recommended practices for online learning include the following:

- Assignments that ask students to express what they have learned and what they still need to learn,
- Breaking up class activities into shorter pieces than in an in-person course,
- Frequent quizzes or other assessment,
- Live sessions in which students can ask questions and participate in discussions,
- Meeting in "breakout groups" during a live class,
- Personal messages to individual students about how they are doing in the course or to make sure they can access course materials,
- Using real world examples to illustrate course content, and

- Work on group projects separately from the course meetings.

The more of these practices integrated into virtual courses, the more satisfied students tend to be with virtual courses. Survey results indicate satisfaction with courses utilizing 0-2 of these practices was around 43% and increased to 61% with the use of 3-5 practices and to 74% with the use of 6-8 practices. The two practices with the strongest correlation to student satisfaction are personal messages to students and asking students to reflect on what they have learned and what they still need to learn.

Academic Integrity in an Online Environment

According to Morris (2018), it is essential that higher education institutes promote and support academic integrity through institutional policies and practices. All higher education institutions should give in-depth deliberation to how they can address, integrate, and enhance their strategies concerning all aspects of student academic misconduct including plagiarism, cheating, collusion, copying work, acquiring work and reuse of a student's own work among others. The advent of online education has brought a great deal of scrutiny revolving around academic integrity in an online environment.

Research indicates that a higher percentage of both faculty and students perceive cheating to be a larger issue for online classes than traditional face-to-face classes (Harton, Aladia, & Gordon, 2019). However, research examining cheating in online versus traditional classes has produced contradictory results (Alessio, Malay, Maurer, Bailer, & Rubin, 2017). They identified several studies identifying no differences in student test scores or grades when comparing online un-proctored and in person proctored tests as well as monitored and unmonitored tests. Other studies found up to one third of students in online courses cheat.

Despite the contradictory evidence of academic misconduct in online courses, there are many best practices, strategies, and software programs that institutions can utilize to minimize student academic misconduct. Many colleges and universities, including Lake Land College, have developed and disseminated tips or best practices guidelines for faculty and instructors to utilize for ensuring academic integrity. Lake Land's tips for ensuring academic integrity include:

- Require students to complete an academic integrity pledge.
- Vary assignments from semester to semester.
- Include a mix of low and high stakes assignments.
- Create quizzes with less searchable answers.
- Avoid creating disposable assignments.
- Create assignments that allow students to contribute to open web sources.
- Consider using open book exams.
- Use technology options.
    - Don't use default setting in quiz settings in the Learning Management System (LMS).
    - Use question randomization in quizzes
    - Use lockdown browser for high stakes exams.
    - Use TurnItIn for writing assignments.
    - Use mastery paths to differentiate instruction.

Open Educational Resources

Open Educational Resources (OER) are defined as "a variety of materials designed for teaching and learning that are both openly available for use by teachers and students that are devoid of purchasing, licensing, and/or royalty fees." The global OER movement has been in process for several years with a growing following in the Unites States. In 2019, multiple governments across the globe adopted standards for legal and technical specifications for sharing open materials across international boundaries. Furthermore, multiple efforts are

currently underway to provide OER materials and resources. Several of these efforts involve developing avenues for faculty to search for OERs across disciplines and international resources.

Using OERs in the classroom has both benefits and detriments. The benefits of using OERs include:

- Expands access to learning: Students can retrieve OERs anytime and anywhere as long as they have access to the Internet.
- Reduces cost: OERs are easily disseminated with little to no cost and can significantly decrease the cost of course materials. In fact, based on various models students spend anywhere from $82 to $100 per textbook. According to a 2020 EDUCAUSE report, research has shown that because of textbook prices up to 75% of students postpone purchasing, 65% avoid purchasing, 50% choose majors based on these prices; and 13% have considered dropping courses.
- Augments class materials: OERs can provide additional information and provide needed information not available in text books.
- Enhances course content: Providing information in multiple formats and using multimedia resources may boost and enrich the learning experience.
- Circulates material quickly: Immediate access is available to students and may increase the significance of the presented information.
- Improves resources continually: OERs can be edited, updated, and enhanced by users. Instructors can use OERs, modify them for specific classes, and make them available for others to use.
- Enhances student success: Fisher et al. (2015) studied student success factors for higher education students using OERs compared to higher education students using traditional textbooks. They found that students using OERs performed just as well or better than students using traditional textbooks when examining course completion and a final grade of a C or better. They also examined the enrollment intensity of students in the study and found students taking courses using OERs enrolled in a significantly higher number of credits the following semester.

Some of the detriments to OERs include:

- Validate information: OERs may not have accurate information if the source allows any user to create, modify, and post information.
- Language: Many OERs are not available in multiple languages. The predominant language is English which limits their use for non-English speakers.
- Technology: OERs require access to quality Internet connections or may require specific software to which students may not have access or the ability to afford.
- Concerns about copyrights and intellectual property: Any content used in OERs must be checked to avoid violating copyright laws.
- Sustainability: Without reimbursement for creating and updating OERs, what is the incentive for updating them and ensuring their continued availability?

Hilton, Robinson, Wiley, & Ackerman (2014) determined that the average cost of textbooks across general education courses to be around $90.00. If a student takes five three-hour courses for a full-time load, the cost of textbooks for a semester would be around $450 or $900 for an academic year. This could have a financial impact on low- and lower-middle income students. This additional cost may influence the choice of college for students with few financial resources (Paulsen & St. John, 2002). Since lower income students are more likely to delay college enrollment than higher income students (Provasnik & Planty, 2008), the additional cost of textbooks may cause further delays in enrollment or decrease the number of classes to reduce costs (Buczynski, 2007).

Bliss, Hilton, Wiley, & Thanos (2013) examined OER adoption for faculty and students across eight different colleges. Half (50%) of the students surveyed felt the quality of the OERs were equal to traditional textbooks and 40% of students believed the OERs were better. A slightly higher percent of faculty (55%) felt the quality

of OERs used and traditional textbooks were the same and 35% of faculty believed the OERs to be better. By using OERs it may be possible to lower the cost of textbooks enough to increase course loads for low income students, which facilitates progress towards degree completion (Fischer, Hilton, Robinson, & Wiley, 2015).

Achieving the Dream[3] (ATD) conducted a multi-year initiative offering 6,600 OER courses to almost 160,000 students, and saved students approximately $10.7 million in instructional material costs. This initiative included 2,000 faculty members who developed and delivered courses using OERs. Griffiths, Mislevey, Ball, Shear, & Desroochers (2020), who conducted the research for the initiative, identified the following outcomes for students and faculty:

Students

- 53% of 2,400 students surveyed reported not purchasing textbooks at least once mainly due to cost.
- 41% reported OERs would have a significant impact on their ability to afford college.
- In six of 11 colleges, students taking courses with OERs earned significantly more credit hours than students without any OER courses.
- In three of the 11 colleges, OER students took an average of three additional credit hours than non-OER students.
- Students saved, on average, $65 per OER course by eliminating the need to purchase course materials.

Instructors

- Of the 1,000 Instructors surveyed, 91% thought their OER programs would "definitely" or "may be" sustained.
- 83% reported they would continue to use OERs in their courses.
- Cost for developing courses (i.e., salary and benefits) using OERs averaged $12,600 and took around 180 hours per course.

AI & Data Analytics in Higher Education

Artificial Intelligence (AI) in Education

Artificial Intelligence (AI) has many applications for everyday life as well as for business and industry. The **benefits of AI** are varied and can include things like automation, smart decision making, medical advances, problem solving, business continuity, and minimizing errors. The applications for higher education are varied as well.

Higher education institutions can use AI for recruiting students, marketing to potential students, planning curricula (i.e., classes and class sizes), and allocating resources and facilities. Student support services can benefit from AI as well. AI can assist students with course scheduling as well as recommending courses, majors, and career paths. AI can also help with providing financial aid when needed, and predictive analytics can be used to identify at risk students early to intervene to help prevent them failing or dropping out. In relation to instruction, AI can provide students with feedback based on the errors they make. In other words, AI can recommend or deliver specific course information for students to review based on their assignments and tests.

In the classroom, AI can be used through the following approaches:

- Adaptive learning platforms can track student progress and understanding of information while adjusting curricula and teaching styles to meet student learning needs.

[3] Achieving the Dream leads America's largest network of community colleges working to become strong engines of student and community growth. ATD's proven model helps colleges identify emerging needs and ways to improve practices across the full spectrum of capacities required for whole-college reform.

- Customized textbooks and materials involve software programs that analyze syllabi to develop study guides based on information emphasized by instructors.
- Automatic course creation and improvement are software platforms involving the ability to assist faculty in designing courses and creating digital, audio, and video materials. For the advanced student, these platforms can generate additional coursework that others may find difficult to navigate.
- Intelligent tutoring systems can offer "real-time feedback" to students and can create personalized lessons for students.
- Automated grading is included in many online platforms but newer adaptations can analyze essays and handwritten work.

Instructors can use technology to develop more creative and personalized learning experiences for students instead of the rote learning style of lecturing and notetaking. Technology can be utilized to develop problem solving skills as well as communication and collaboration skills. Since education continues to use whiteboards and notebooks along with technology, it is crucial to utilize space allowing both teachers and students to employ both technology and "old school" products at the same time.

AI has other applications in higher education. Georgia Tech has taken some innovative approaches to using AI for academia and student services. A faculty member at Georgia Tech programmed an AI teaching assistant that could address common student questions posted to a discussion board. The virtual "Jill Watson" answered questions with a 97% success rate and freed time for other teaching assistants to answer questions she couldn't address, motivate students and help with coursework. In 2016, Georgia Tech also developed a smart texting chatbot that reduced the number of incoming freshmen who dropped out before fall 2016 classes began by 22%. The chatbot was available for questions via text 24/7 and could direct students to help for financial aid, placement testing, and registration. During the first summer of implementation, the chatbot answered over 200,000 questions asked by incoming freshmen. In human terms this translates to 10 full time staff members.

Despite the advantages and success of AI initiatives, there are challenges with developing and implementing these approaches. The resources needed to develop and implement AI initiatives may be intimidating. Resources include not only the cost but the staff time needed to effectively feed the necessary data into AI initiatives. Over 40,000 posts were integrated into "Jill Watson's" programming so she could answer student questions. In addition to their normal workload, ten counselors spent months feeding information into the chatbot at Georgia Tech so it could respond accurately to student inquiries. Campus wide nonacademic AI initiatives require a wide array of staff beyond IT to be trained to use data and AI tools. AI systems can be used to monitor energy efficiency in campus buildings, which means facilities staff will need more than mechanical skills in these situations.

Data Analytics

Data analytics is defined as "a discipline focused on extracting insights from data. It comprises the processes, tools and techniques of data analysis and management, including the collection, organization, and storage of data. Data analytics draws from a range of disciplines — including computer programming, mathematics, and statistics — to perform analysis on data in an effort to describe, predict, and improve performance." Data Analytics is used across all sectors of business including but not limited to financial, healthcare, manufacturing, retail, marketing, and higher education.

Higher education is using data analytics in many ways including to improve student success measures such as retention and completion. Data analytics can be used to identify students at risk of dropping out before they actually drop out, allowing colleges to intervene and provide assistance and resources to students for their academic achievement. Retaining students can also assist with a college's bottom line. While data analytic

tools initially cost a college money to implement and use the tools, over time the cost per student tends to decrease and could ultimately provide a college $1 million annually simply by retaining students.

Data analytics also provides new avenues for colleges and universities to engage current and perspective students and increase enrollment as well as enhance faculty productivity and research. Some universities are using data analytics to improve communication and marketing efforts with current and prospective students. Deakin University merged all of its data into an analytic platform that allowed them to effectively manage their data and shorten the time frame in responding to student inquiries as well as address the specific problems facing students.

Colleges and universities can use data analytics in a number of ways to benefit their students and institution. Accessing and analyzing both historical and "real-time" data can provide insight into advancing an institution's services and bottom line as well as enhancing the student experience. Examples of some potential benefits include:

- Examining attrition rates, course enrollment, and student performance to redesign courses based on student needs.
- Measuring student interactions with online courses and tracking their progress.
- Identifying academically struggling students.
- Responding to student inquiries.
- Improving marketing, outreach, and recruitment efforts.
- Improving student success measures such as course persistence, retention, and program completion.
- Informing the decision making process.
- Saving expenses and costs.
- Finding answers to hard questions.
- Identifying trends.

Lake Land began implementing and expanding its data analytics capabilities in 2017. Since then, the Director of Data Analytics has spearheaded and launched the use of a data visualization tool – Tableau, providing a single point of access to real-time data from numerous college sources. During FY 2021, 248 data project requests were completed, and 43 employees have been trained and granted access as end users for the Tableau dashboards. Reports and dashboards available for end users include the areas of Academics, Counseling & Advising, Developmental Education, Enrollment, Foundation & Alumni, Human Resources, Marketing & Public Relations, Scheduling, and Retention.

In 2021, a data summit was conducted with the division chairs from all academic divisions. During this summit, participants identified current use of data as well as the sources from which data are collected. They also created a wish-list of reports/analytics, which is being used to develop new projects that are disseminated once completed. Plans to meet with the remaining institutional areas for their own data summits are underway to introduce the use and benefits of Tableau and Data Analytics to all areas of the college. In the coming year, Lake Land's Data Analytics and Guided Pathways teams will collaborate to implement predictive analytics to enhance early identification of at risk students and provide appropriate and timely assistance to support their persistence, retention and completion.

Alternative Credential Offerings

With the 50% drop in global fertility rates since the 1960s, the student population is shifting in age and ethnicity. US college enrollment predictions are indicating a potential 10% reduction in enrollment by the late 2020s. These shifts are leading to changes in student demographics especially in age and diversity. The changes in workforce automation along with student demographics provide new opportunities for institutions

to reexamine their degree pathways to include alternative credentials beyond academic degrees of two years or more.

According to Gauthier (2020), today's employers expect recent college graduates to exhibit mastered essential/soft and core employability skills once hired. Essential/soft employability skills include 1) communication skills, 2) teamwork, collaboration, and conflict management skills, 3) critical thinking, analytic, and creativity skills, 4) ethics and integrity, and 5) computer skills. Core employability skills are acquired through basic and technical education and align with core job functions. In fact, a majority of employers believe that soft skills are very important and may be more important than hard skills. Furthermore, 40% of job recruiters and 56% of students want more communication skills, and 30% of job recruiters and 55% of students want more critical thinking or problem solving skills.

Given the interest and need from both employers and students for additional skills, it is clear higher education needs to continue evolving to meet these needs. One approach to addressing these needs could include offering alternative credentials. Alternative credentials are not new to higher education, and they can include non-credit certificate programs, apprenticeships, CEU courses, non-credit trainings, or other non-traditional offerings. The newest types of alternative credentials gaining the most attention are micro-credentials involving a few courses or modules targeting a specific need. These types of credentials permit students to customize their education to their own needs as well as address the needs of business and industry. The benefits of micro-credentials are many. For the most part, micro-credentials are a competency-based, affordable, online, short-term avenue to acquire specific knowledge and gain greater earning power. Once completed a student receives a digital badge indicating competency gained in that specific area.

What happens when a student accumulates multiple credentials? Given the various pathways students can acquire a degree, can students use credentials acquired over time to accomplish the same goal? Credentials can be "stacked" vertically, horizontally, or by adding value. Vertical stacking involves credentials that build on each other and can lead to a certificate or degree. This type of credential stacking would help address the educational gap between the education levels of current employees and the education levels employers want for various jobs. Horizontal stacking allows students to become more knowledgeable about specific subjects. While some credentials can build on each other, the goal here would be to expand one's knowledge base into new areas of the same or similar field. For example, in the information technology world, someone may have a degree in network administration but wants to acquire a stronger knowledge base related to web management or programming to prepare themselves for a specific job. Value-added stacking merges vertical and horizontal stacking models. This happens when someone with a bachelor's or associate degree develops their expertise in a new area (e.g., management) to prepare for a job.

Alternative credentials have the benefits of being cost effective, short-term, flexible, and promoting lifelong learning as well as providing the opportunity to gain new skills and/or a full degree if wanted. However, they do have a few drawbacks including how to compare credentials across institutions, how to combine badges and credentials into full degrees, how to gain universal recognition by employers, how to address federal financial aid restrictions, and how to provide the same resources such as academic advisors to credential students as degree seeking students.

Part VII. WORKFORCE

Automation and the Workforce

According to Lund, Manyika, Segel, Dua, Hancock, Rutherford, and Macon (2019), the US labor market is changing due to automation technologies and intelligent machines. Over the next decade, these changes will put many jobs that are automatable at risk. While few jobs can be automated entirely (less than 5%), 60% of jobs can have up to 30% of their activities automated using current technologies. As jobs move forward, how work is organized and the mix of jobs will change based on available technology. As a result, businesses, industry, and workers will have to adjust to jobs that require higher cognitive and technological skills.

These changes will cause rifts in employment especially in rural America, where Lund et al., (2019) speculate more than 25% of workers could be displaced. Areas less affected by automation are more likely to have diversified economies and workers with higher educational attainment. The occupational categories impacted the most by automation will include some of the largest occupational categories, such as office support, food service, production work, customer service, and retail sales. Close to 40% of jobs fall into these potentially dwindling categories which will impact all communities across the country. While some occupations will lose jobs, other occupations such as healthcare, STEM occupations, creative fields and business services, will see strong growth, and some occupations may see both displacement and growth through the automation of some tasks resulting in shifting more non-automatable tasks to current workers.

Ultimately, the increasing automation in occupations leads to higher salaries, however, these higher salaries can only be acquired with advanced education and skills. This means that workers with high school diplomas are the most likely to be displaced by automation and technology. Based on educational attainment data, minorities may be more vulnerable to displacement. Lund et al., (2019) estimates the following displacement rates by race/ethnicity 25.5% Hispanic, 23.1% African Americans, 22.4% White, and 21.7% for Asian-Americans. Younger (under 34) workers will face unique challenges as well. Many of the "first" jobs providing valuable essential/soft skills and experience to new workers will be phased out with automation, forcing young workers to forge new paths to gain work experience.

Lund et al., (2019) identified several challenges that these changes will bring to the workforce including:

- Connecting displaced workers with new, growing jobs,
- Geography or mobility barriers such as affordable housing, or emotional barriers such as deep family ties,
- Demand for higher cognitive, critical thinking, and technological skills,
- Continual evolution of skills in the STEM fields,
- Transition of front loading education to lifelong learning,
- Training will happen within and outside the workplace, and
- Midcareer workers need short, flexible courses to learn new skills in months not years.

Decreasing Workforce

Even before the COVID pandemic hit in spring 2020, almost 70% of US employers reported difficulties in hiring qualified employees, a 17% increase from 2018. January and February of 2021 both saw increases in job openings of 5.1% and 3.8%, respectively, yet there are still more job openings than unemployed workers. Given these statistics, why aren't more people being hired? Is it because the unemployed workers lack the

skills for available job openings? When COVID hit and unemployment increased, shouldn't employers have had their pick of available workers?

It's being called the "COVID paradox" (Hetrick, Grieser, Sentz, Coffey, & Burrow, 2021). This paradox involves millions of people out of work, millions of empty jobs waiting to be filled, and millions of people choosing to avoid the labor market. The US labor force participation rate (LFPR) measures the number of people employed or actively seeking work. According to Hetrick et al., (2021), this rate has decreased to a low not seen since the mid-1970s.

While it would be easy to lay this on the COVID pandemic, Hetrick et al., (2021) suggests that this problem has been a long time coming, and while accelerated by the pandemic, the "sansdemic" or people shortage has been on the horizon for decades. In fact, between July 2019 and 2020, the US had the lowest annual growth rate in **over 100 years**. The data suggest that US census numbers for 2020 could be the lowest growth rate in any decade since 1790. Furthermore, US birth rates for the past six consecutive years have been at the lowest levels since 1979, which are record lows, and are below replacement levels.

Hetrick et al., (2021) identified three pre-existing conditions leading to the people shortage. The first revolves around the 76 million American baby boomers who changed the workforce. Their entry into the workforce provided:

- More women entering the workforce than ever before—essentially doubling the workforce,
- An educated workforce motivated to work hard and advance careers, and
- Open market hiring allowing companies to pick from a selection of educated, experienced applicants.

However, baby boomers are exiting the workforce in large numbers, and with them goes their experience and knowledge. On average, 2 million baby boomers retire each year and that increased to 3 million in 2020. In addition, the boomers leaving the workforce are not being replaced with new workers. Boomers grew up in families with an average of four children, yet boomers had an average of only 1.8 children.

The second pre-exiting condition identified by Hetrick et al., (2021) is the decrease of men aged 25 to 54 in the workforce. In 1980, 38% of the workforce consisted of men in this age bracket, and by 2019 that percentage had dropped to only 34%. Men are delaying the responsibility of working, marriage, children, and home ownership and working men are also choosing to work part-time versus full-time.

Hetrick's et al., (2021) third pre-existing condition is the declining fertility rate in America. It is predicted that by 2028, the US will have 6 million unfilled jobs and the number of unfilled positions across the globe will expand to 85 million. The main cause for this phenomena is low birth rates across the globe for the past 50 years, leaving both classrooms and jobs vacant (Hetrick et al., (2021). These deficits will cause competition for recruiting students for higher education and workers for businesses. The financial impact is staggering. Based on these estimates, the US alone could lose up to $162 billion annually due to unfilled jobs.

Science Technology Engineering and Math (STEM) and Healthcare Jobs

Advancing technologies are changing the face of the American workforce. Artificial intelligence and robots are becoming more common in the workplace, forcing employees to learn new skills to keep their jobs. According to Yamashita and Cummins (2021), up to 48% of jobs could be replaced by automation over the next twenty years, and the four most at risk industries include 1) service, 2) sales and office, 3) natural resources, construction, and maintenance, and 4) production, transportation, and material moving, which were at a particular high risk (up to 75%). The fields less likely to be impacted by advancing technologies replacing jobs included computer, engineering, and health-care occupations. According to Lund, et al., (2019), by 2020

healthcare and STEM occupations will grow by 48% and 37% respectively of 2017 levels despite the impact of job shrinking due to automation.

According to the US Bureau of Labor Statistics as of April 2021, the table below lists the projected twelve fastest growing occupations based on percent change between 2019 and 2029 for the United States. All of these occupations can be categorized into either a STEM (science, technology, engineering, and mathematics) or healthcare occupation.

US Bureau of Labor Statistics Twelve Fastest Growing Occupations Projected in the US between 2019-2029		
Occupation	% Change Growth Rate	2020 Median Pay
Wind Turbine Service Tech	61%	$56,230
Nurse Practitioners	52%	$111,680
Solar Photovoltaic Installers	51%	$46,470
Occupational Therapy Assistants	35%	$62,940
Statisticians	35%	$92,270
Home Health and Personal Care Aides	34%	$27,080
Physical Therapy Assistants	33%	$59,770
Medical and Health Services Managers	32%	$104,280
Physician Assistants	31%	$115,390
Information Security Analysts	31%	$103,590
Data Scientists and Math occupations	31%	$98,230
Derrick Operators, Oil and Gas	31%	$47,920

The base of this large demand in the STEM occupations is the high need for computer skills especially in the area of information security analysts, software developers, and computer and information scientists. The increasing use of digitized devices, goods, and services is driving the digital economy to grow faster than the overall economy. According to Gleason (2018), the skills needed for an automation economy are different than the skills accentuated by higher education in the past. Gleason (2018) reports the prioritized top ten skills needed by employers are: complex problem solving, critical thinking, creativity, people management, coordinating with others, emotional intelligence, judgment and decision making, service orientation, negotiation, and cognitive flexibility.

For many businesses, the COVID-19 Pandemic has fast-tracked automation. The pandemic forced companies into workplace distancing and remote working as well as changed the behaviors and preferences of customers, which has caused companies to reevaluate their operations. Many of the changes being made (i.e., reconfigure supply lines and production operations, contactless operations, and digital first customer experiences) will dramatically change the skills required for the workforce. Moving forward into automation will impact the workforce in two ways: 1) upskilling where employees gain new skills to maintain their current job, and 2) reskilling where employees assume different or new jobs.

PART VIII. COLLABORATION

Business & Industry

According to a 2019 Lumina Foundation Report, the increasingly changing economic environment is intensifying the demand for occupational education. Workers in industries across the board require technical savvy to be successful. As a result, acquiring a job paying enough to support a family with only a high school education is difficult to find today. While community colleges can meet students in their communities and provide them with career and technical education opportunities, providing students with the education that aligns directly with work based learning opportunities continues to be a struggle. To be successful in this endeavor, community colleges and local business and industry need to collaborate, which is not an easy undertaking. They live in different worlds, speak different languages, and move at different speeds.

The Lumina Foundation identified some "key ingredients" for a new approach for community colleges to not only engage employers but offer more work based learning or apprenticeship opportunities to students. The key ingredients include:

- Build on the strength of noncredit departments: This involves developing short term trainings directly with local employers and designed to fit the employer's needs.
- Harness industry certifications: This may involve working with local trade associations to build the skills needed for companies across a community college district. Again, this may or may not involve working with the noncredit area of the college as well as growing/expanding the skills of current workers in the industry. This is mutually beneficial to students and employers. The student develops an in-demand skill, and employers know which job applicants have their needed skills.
- Employer collectives: Multiple employers in a single industry work together with a community college to fill labor needs.
- Credentialing that opens to lifelong learning: This includes the concept of stackable credentials involving short term credentials and mechanisms to link them. Community colleges need to examine how to translate these credentials and link them to conventional degrees.

Expanding apprenticeships, internships, and work based learning opportunities for community college students is gaining momentum in higher education. According to Beer (2018) and the ICCTA, higher education and business community leaders have a great deal of interest in expanding "earn and learn" experiences that link postsecondary education with career opportunities. In fact, the Department of Labor (DOL) reported the number of registered apprenticeships increased by 70% nationally since 2011 which equates to more than a 1.9 million active opportunities in registered apprenticeship programs nationally. Unfortunately, the concentration of apprenticeship programs are focused in the construction industry and military. Less than 1% of apprenticeships are in two growing industries of health care and information technology.

One of the advantages of a registered apprenticeship program is the industry recognized credential that a participant earns at the completion of the program. This allows the participant to move into positions at other companies with a recognized credential. Apprenticeship programs provide other advantages to participants including paying participants to work while earning their credentials and paying for the training needed for participants. In addition, adult learners can learn new skills without quitting their jobs or paying for the education needed, and recent high school graduates have an opportunity to learn an occupation without accumulating student debt. The advantages for companies involve growing their own workforce with the skills they need, adapting the model to the jobs needed, building a responsive training system for constantly

evolving industries, partnering with community colleges to provide the academic aspects of the training the company cannot provide, and increasing worker retention.

Work based learning models including internships and supervised occupational experiences/co-ops as well as apprenticeships provide opportunities to acquire hand on knowledge and skills that cannot be taught in the classroom. Research indicates students participating in paid work based learning opportunities are more likely than students with unpaid work based learning experiences to receive job offers across employer types. In addition, they are more likely to receive higher starting salaries than those that participated in unpaid opportunities. However, according to the Urban Institute, only one-fifth of surveyed adults report completing a work based learning program, most of which are required experiences in the health care and education fields. Only 14% reported participating in work based learning as part of their college education.

Expanding work based learning experiences depends on employer buy-in. One way that Lake Land is working to gain employer buy-in and expand collaboration and partnerships with areas businesses is through the Effingham Regional Career Academy (ERCA). ERCA is a public/private partnership between business, education, and the community. ERCA that will teach skills and knowledge needed in the current and future job market. Its mission is to attract, retain and grow area businesses by providing sustainable pathways to high skill, high demand careers for high school students, adult learners, and incumbent workers. Another strategy Lake Land has implemented to enhance collaboration with K-12 and business and industry is Guided Pathways to Success (GPS). GPS expands K-12 and university partnerships to provide a clear pathway to meaningful educational or career outcomes. The Guided Pathways Model is an integrated, institution-wide approach to student success based on intentionally designed, clear, coherent and structured educational experiences, informed by available evidence, that guide each student effectively and efficiently from her/his point of entry through to attainment of high-quality postsecondary credentials and careers with value in the labor market.

Dual Credit

According to the US Department of Education, between the academic years of 2002-03 and 2010-11, the number of high school students taking dual credit courses increased by 68% for a total of nearly 1.4 million students. Almost 70% of high schools provided dual credit opportunities to their students by 2015. Even with this dramatic increase in dual credit participation, dual credit programs vary considerably by state—with around 1% in Massachusetts to 23% in Indiana. According to the Illinois Community College Board, the number of Illinois students taking dual credit increased from 51,718 in 2015 to 69,299 in 2020.

According to the US Department of Education, based on a longitudinal study of high school freshmen in 2009, around 34% of the 23,000 high school students in the study took courses for college credit while in high school. Of these students taking college level credit courses, a higher percentage (42%) had parents with a bachelor's or advanced degree than students whose parents had less than a high school diploma (26%). A higher percentage of these students were Asian (38%) and White (38%) than Hispanic (30%) or Black (27%). The vast majority of these students (80%) took the courses at their high school, while 17% took them on a college campus, 8% took online courses, and 6% took them at another high school.

According to a study of 200,000 dual enrolled high school students in fall 2010, 88% enrolled in college after graduating high school and 12% had not enrolled in college by age 20. Around 50% of the students attending college enrolled in a community college after completing high school, and 84% of the community college enrollees enrolled at the community college that provided their dual credit opportunities. Approximately 41% of these students enrolled at a four-year institution after graduating high school. Of the students starting at a community college, 46% completed a degree or certificate within five years. The percent of completers varied widely by state from 28% in West Virginia to 64% in Florida. In some states, completion rates for lower and higher income students (based on census tract household median income) differed by 10% or more. Sixty-four

percent of students starting at a four-year institution completed a degree or certificate within five years. The percent of completers varied widely by state, and ranged from 34% in Nevada to 75% in Florida.

The results of this study for Illinois reveal the following:

- 52% of dual credit students first enrolled in community college:
  - 51% of students first attending a community college completed a certificate, associate degree or a bachelor's degree within five years.
  - 44% of Illinois students completing a degree had lower income compared to 43% nationally.
  - 54% of Illinois students completing a degree had higher income compared to 50% nationally.
- 35% first attended a four-year institution:
  - 74% of students first attending a four-year college completed a certificate, associate, degree or bachelor's degree within five years.
  - 67% of Illinois students completing a degree had lower income compared to 58% nationally.
  - 77% of Illinois students completing a degree had higher income compared to 71% nationally.

Research has identified several benefits of participating with dual credit programs. These findings reveal that dual credit students are more likely than non-dual credit students to enroll in college, complete a college credential/degree, and finish a degree in less time. A California study on dual enrollment participation found dual enrollees were more likely than their non-dual credit peers to graduate from high school, enroll in a four-year college, persist in college, accumulate more college credit, and were less likely to take remedial courses. A study in Texas found the following:

- Dual credit students are twice as likely to graduate college within four years than their non-dual counterparts.
- Among students who graduate college within four years, dual credit students graduate a semester earlier than their non-dual counterparts.
- Dual credit students are more likely to be retained than their non-dual credit peers.
- Dual credit students have higher GPA's than their non-dual peers.
- Dual credit students tend to have fewer credit hours when they graduate then their non-dual peers.
- Dual credit students entering a four-year college with 60 or more credit hours borrow less in student loans than their non-dual peers.

While research has identified a number of dual credit benefits for student success, there are a few concerns. One of the main concerns of dual credit is rigor. The main focus of this concern is if high school instructors have the qualifications to teach a college level course and if they are holding students to the same standards as college faculty. Dual credit instructor qualifications vary by state and accreditors. For Illinois, dual credit instructors must:

- Have the same academic credential requirements as on campus college instructors.
- Be evaluated by the college for which they provide dual credit courses.
- Have 18 graduate hours in the field for which they teach (for transfer courses).
- Have 2,000 hours work experience and appropriate credentials for specific field (for Career and Technical Education [CTE] courses).
- Meet all state laws, ICCB and state regulatory agencies, accreditation standards, and local college/institutional standards that apply to courses, instructional procedures, and academic standards.

Given the advantages that dual credit provides for student success, is it working equally for all students? Research has shown that lower percentages of Black and Hispanic students enroll in dual credit courses and that fewer low-income students complete college degrees than students with higher incomes. Dual credit programs can differ widely in eligibility requirements, affordability, and student support, which can create barriers for minority and low-income students.

In many cases, state requirements limit dual credit to academic high-achieving students who are more likely to attend college anyway. Zinth & Barnett (2018) argue that middle-achieving students who fall just under the placement scores or readiness measures can succeed and benefit from dual credit programs. Research conducted with middle-achieving high school students found no differences in final course grades between middle and high achieving students. Survey responses from the students indicated increased academic motivation and skills, academic behavior, and self-advocacy for the middle-achieving students.

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